IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

MICROSOFT CORPORATION, Plaintiff, v. ALCATEL BUSINESS SYSTEMS and GENESYS TELECOMMUNICATIONS LABORATORIES, INC., Defendants.	)	C.A. No. 07-090 (SLR) **REDACTED VERSION**

ALCATEL BUSINESS SYSTEMS' OPENING BRIEF IN SUPPORT OF ITS MOTION TO DISQUALIFY COUNSEL, FOR EXCLUSION OF EVIDENCE AND FOR OTHER SANCTIONS

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I. NATURE AND STAGE OF THE PROCEEDING

On February 16, 2007, Plaintiff Microsoft Corporation ("Microsoft") filed a complaint in this Court alleging, *inter alia,* that certain "unified communications systems" of Alcatel Business Systems ("Alcatel") infringe certain claims of U.S. Patent Nos. 6,430,289 ("the '289 patent"), 6,421,439 ("the '439 patent") 6,263,064 ("the '064 patent"), 6,728,357 ("the '357 patent") (the "patents-in-suit"). (*See* First Amended Complaint, dated May 30, 2007 (D.I. 15) at ¶¶ 12, 18, 24, 30.) Microsoft amended its complaint on May 30, 2007, adding Genesys Telecommunications Laboratories, Inc. and alleging that Genesys infringes the '289 and '439 patents. (*Id.* at ¶¶ 36 and 42.)

This case is in now in discovery, and Microsoft has also initiated an investigation before the United States International Trade Commission (the "ITC") against Alcatel asserting substantively identical claims based on the same patents.[1] The ITC Investigation is close to trial, having progressed through substantial discovery—including more than 25 depositions—and Microsoft's submission of both an expert report on infringement and a supplement to that report. The parties have agreed that all discovery obtained in the parallel ITC Investigation can be used in this Action. (*See* August 3, 2007 Scheduling Order, D.I. 26.) Having failed to substantiate Microsoft's claims of infringement through proper discovery, it appears that its attorneys have resorted to unethical tactics to try to manufacture support for Microsoft's claims.

II. SUMMARY OF THE ARGUMENT

Alcatel very recently learned that Fish & Richardson P.C. ("F&R"), counsel for Microsoft, engaged in a course of misconduct which violates several of the ABA Model Rules of Professional Conduct (the "Model Rules") that govern the behavior of lawyers in proceedings

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[1] In the Matter of Certain Unified Communication Systems, Products Used with Such Systems, and Components Thereof, Inv. No. 337-TA-598 (the "ITC Investigation").

before this Court. Because, after formal discovery concerning the accused products, Microsoft has no case against Alcatel, F&R sought to modify the accused system—and interrogated, *ex parte*, a senior Alcatel engineer about the system's capabilities under the pretext of purchasing the accused products for use in F&R's offices—in an effort to manufacture purported support for Microsoft's claims.

Recently, F&R arranged for installation of Alcatel's accused products at F&R's Washington, D.C. office. F&R provided no notice to Alcatel or its counsel, and in fact arranged for the installation under a third party's name and with the represented purpose of testing the products for use in its offices nationwide. As part of that "installation," F&R attorneys pursuing these claims for Microsoft—without stating that they were F&R attorneys pursuing these claims—proceeded to interrogate the senior Alcatel engineer who arrived at their offices to install and configure the accused Alcatel products. This interrogation went on for a number of days. Without revealing their identities or their true purposes in these proceedings, the F&R attorneys ***procured confidential information*** from the Alcatel engineer to use in these proceedings against Alcatel.

After the installation, F&R—again without explaining its purpose or seeking the consent of Alcatel's counsel—arranged for the return of the senior Alcatel engineer by name, and ***actually sought his help in trying to configure the products in an allegedly-infringing manner.*** In fact, F&R apparently provided the information gleaned from their *ex parte* interrogation of the Alcatel engineer to Microsoft's infringement expert in the ITC investigation, Jack Chang, who was preparing his initial expert report at F&R's offices ***at the same time*** that the F&R attorneys were engaged in their misconduct, and who based his opinions on information provided to him by the F&R attorneys.

As described below and as supported by the declarations submitted with this brief—including the declaration of the Alcatel senior engineer interrogated by Microsoft's counsel and the declaration of Thomas D. Morgan, a prominent legal ethics professor—F&R's conduct violated several applicable ethical rules. Model Rules 4.2 and 4.3 required F&R to obtain the consent of Alcatel's counsel before interrogating the senior Alcatel engineer, and to identify itself and make its role in these proceedings clear to the engineer. F&R did neither. Model Rules 4.1 and 8.4 prohibit all attorneys from engaging in conduct involving "dishonesty, fraud, deceit or misrepresentation." F&R disregarded these Rules.

Indeed, in Professor Morgan's opinion based on these facts, F&R's conduct with respect to the Alcatel engineer was "offensive," and in his view, "[i]t is hard to imagine a case more accurately described" by the Model Rules' prohibition on "dishonesty, fraud, deceit or misrepresentation." (Morgan Decl. at ¶ 6g.) Moreover, F&R's misconduct has grossly prejudiced Alcatel in both this litigation and the related ITC Investigation, particularly because Microsoft, through F&R, bases its expert testimony and strategy on the improperly-obtained confidential information of its adversary.

Alcatel therefore requests that this Court order the following relief in order to cure the prejudice to Alcatel resulting from this improper interrogation of the Alcatel engineer:

- disqualification of F&R as counsel for Microsoft;
- exclusion of Jack Chang from any involvement on behalf of Microsoft in this litigation or any related proceedings;
- production by F&R and Microsoft, and possible exclusion, of documents and information related to and detailing the improper conduct, as well as further discovery into the issue, including depositions of F&R, Microsoft and all those involved in these actions; and
- monetary sanctions, including the costs of bringing this motion, attorneys' fees, and any other relief this Court deems appropriate.

Alcatel does not seek this relief lightly. Unfortunately, given the uses to which Alcatel understands the information has been put, there is little alternative. Absent such relief, Microsoft and F&R will continue to exploit the ill-gotten fruits of their misconduct to the substantial prejudice of Alcatel.

III. STATEMENT OF FACTS

A. Microsoft's Allegations

Microsoft asserts that Alcatel's OmniTouch Unified Communication software suite ("OTUC"), including the My Assistant application; OTUC server(s); the Alcatel OmniPCX Enterprise ("OXE") Communication Server; and the Alcatel 4980 softphone application ("My Softphone") (the "Accused Products") infringe a subset of the originally-asserted claims of the patents-in-suit.

1. The '289 and '439 Patents

The '289 patent describes a method and apparatus for routing telephone calls based on pre-determined rules created by the called party, taking into account the activity of the called party's computer and/or the activity of the calling party's computer. (*See* Ex. 1 ('289 patent and abstract) at 2:66-3:5.) The '289 patent states:

> The call processing criteria may include accepting all calls, no calls, or calls only from specified parties. . . . A user's computer activity may also be monitored and the computer status as idle or active may be reported to the computer network as part of the call processing criteria.

(Ex. 1 ('289 Abstract).)

The '439 patent is very similar to the '289 patent and also describes and claims a method and apparatus for routing telephone calls based on pre-determined rules taking into account a calling party's or called party's activity on a computer network.

Microsoft has alleged, among other things, that the ability to route calls based on computer scheduling programs ***or entries in computer calendars*** infringes the '289 patent and the '439 patent, and that the Accused Products have this allegedly-infringing functionality. Although it is clear from all available evidence that the Accused Products cannot perform such routing, Microsoft continues to argue the contrary. (*See, e.g.,* Ex. 2 (July 30, 2007 Supp. Expert Report of Jack Chang in the ITC Investigation).)

2. The '064 and '357 Patents

The '064 and '357 patents are related patents that describe and claim inventions that attempt to address issues arising from the proliferation of different types of communication services—for example, telephone services, e-mail services, and facsimile services.[2] The patents describe a "computer-implemented control center" that allows a user "to customize communication options pertaining to" the communication services. (Ex. 3 ('064 patent) at 4:7-11.) The patents claim a system where a computer server provides a user with (1) a single graphical menu, which the user can use to modify the communication options associated with each communication service and (2) a telephony server that provides a user with an audible menu played over a telephone through which the user can modify the same communication options. *Id.*

Microsoft has alleged, based on screenshots and information concerning the topology and configuration of the Accused Products installed in F&R's offices, that the Accused Products infringe the '064 and '357 patents. (*See, e.g.*, Ex. 4 (July 11, 2007 Expert Report of Jack Chang in the ITC Investigation).)

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[2] The '357 patent is a continuation of the '064 patent.

B. F&R's Misconduct

1. Under a Third Party's Name, F&R Arranged for the Installation of an Accused Alcatel System

F&R recently posed as a potential client for the Accused Products in this litigation (collectively, the "Alcatel System"). Specifically, on or about June 13, 2007, a company identifying itself as Miercom contacted an Alcatel United States sales agent, Alliance Telecommunications ("Alliance"), and expressed interest in installing the Alcatel System for testing to determine whether the Alcatel System would be deployed in offices nationwide. (*See* Declaration of Arnold Intal, hereinafter "Intal Decl." at ¶¶ 3, 5; Declaration of Po Ching Lin, hereinafter "Lin Decl." at ¶ 6.) Alcatel was not told that the installation was for F&R.

Later that week, Alliance informed Miercom that [redacted] and that an Alcatel employee specializing in the Alcatel System would participate in the installation. (*See* Intal Decl., Ex. C, 6/18/2007 Emails from R. Knapp to M. Hommer (also stating to Miercom that Alcatel wants to be sure [redacted] Alliance informed Miercom that, because Alcatel considered Miercom (the ostensible "client")—a company that publishes reports rating networking products including Alcatel's products—to be particularly important, Alcatel would be [redacted] (*See id.*; *see also* www.miercom.com.) Indeed, in the course of communicating with Alliance personnel regarding server issues, Alcatel was advised in an email entitled "Installation at Miercom Washington DC":

[redacted]

(Ex. 5 (Emails Reviewed by T. Morgan, ABSE 000001- ABSE 000418), at ABSE 000182 (6/21/2007 Email from R. Knapp to P. Lin).)

Thus, Alcatel was led to believe that this was an "Installation at Miercom Washington DC" for possible deployment nationwide. Again, F&R's involvement and true purpose were not revealed to Alcatel.

Miercom informed Alliance that the installation was scheduled to take place in Washington, D.C. on June 26, 2007. (*See* Intal Decl., Ex. C, 6/18/2007, 6/21/2007 and 6/22/2007 Emails between R. Knapp and M. Hommer.) The Friday prior to the scheduled installation, Alcatel personnel finally were given an address "for the Miercom install down in DC." (Lin. Decl., Ex. B, 6/22/2007 Email from R. Knapp to P. Lin, 6/22/2007 Email from M. Hommer to R. Knapp.) Alliance technician Dan McGirr and senior Alcatel engineer Po Ching Lin arrived at the specified address at the appointed time, but were surprised to discover that Miercom did not have an office there. (Lin Decl. at ¶ 9.) Instead of Miercom, Mr. McGirr and Mr. Lin found themselves at the offices of F&R, a company with which they were not familiar. (*Id.*) Confused, Mr. McGirr called Alliance for instructions and Alliance was then informed by Miercom that the installation was to proceed in F&R's D.C. offices. (*Id.*)

2. Without Identifying its Interest in the Litigation, F&R Interrogated a Senior Alcatel Employee

a. ***Mr. Lin is One of the Few Subject Matter Experts on the Alcatel System***

Because Alcatel was told that the project involved a pilot installation for a potentially larger project, Arnold Intal, the Alcatel regional manager in charge of support services, asked Mr. Lin personally to assist with the installation. (*See* Intal Decl. at ¶ 6, 5.) Mr. Lin is a senior Alcatel engineer with extensive experience involving the Alcatel System. Mr. Lin has worked for Alcatel for twenty years and was part of the Alcatel Research and Development group that tested and validated the hardware portion of the accused Alcatel System. (*See* Lin Decl. at ¶¶ 3, 12.) In 2002, Mr. Lin joined Alcatel's Technical Support Group, which provides the highest

level of support for complex problems with Alcatel products, and in this current position, Mr. Lin specializes in installing, troubleshooting and conducting customized on-site training for, among other things, the accused Alcatel System. (*See id.* at ¶¶ 4-5.)[3]

b. ***F&R Interrogates Mr. Lin for Several Days***

Upon arriving at F&R, Mr. Lin was met initially not just by an F&R information technology person, but also by Rama Elluru, and later by Joshua Pond, who—unbeknownst to Mr. Lin—are two of the attorneys primarily responsible for pursuing these claims on behalf of Microsoft.[4] Mr. Lin introduced himself to the F&R attorneys as an Alcatel engineer and gave Ms. Elluru his business card, prominently identifying him as an Alcatel employee. (*See id.* at ¶ 11; *id.*, Ex. C.) Instead of stopping at that point or identifying herself as an attorney adverse to Alcatel, Ms. Elluru proceeded to question Mr. Lin regarding how long he had been employed by Alcatel, and he informed her of his twenty years' experience with Alcatel. (*See id.* at ¶ 12.) Ms. Elluru subsequently asked Mr. Lin to describe his specialty, and Mr. Lin informed her that he specializes in the installation of, and training on, the accused Alcatel System. (*See id.* at ¶ 13.)

Setting aside the false pretense upon which F&R first acquired the Alcatel System, F&R should have made explicit its role in this matter to Mr. Lin, and contacted Alcatel's counsel regarding F&R's proposed communications with Mr. Lin, immediately upon learning that Mr. Lin was an Alcatel employee. At no point during the initial installation (lasting four days), however, did Ms. Elluru, Mr. Pond or any other F&R attorney identify himself or herself as an

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3 In fact, Mr. Lin's name is on many documents produced by Alcatel to Microsoft during discovery.

4 Ms. Elluru and Mr. Pond have taken and/or appeared at several depositions in the ITC Investigation. Ms. Elluru's name appears on the Complaint and the Amended Complaint filed in this action. *See* Complaint, dated February 16, 2007 (D.I. 1) at 7; First Amended Complaint, dated May 30, 2007 (D.I. 15) at 9. Ms. Elluru holds herself out as admitted to practice in the District of Columbia, Texas and Virginia. Mr. Pond holds himself out as admitted to practice in the District of Columbia and Virginia. *See* www.fr.com.

attorney—let alone as an attorney for Microsoft in a patent infringement lawsuit or an ITC investigation adverse to Alcatel. At no point did they tell Mr. Lin that they were representing Microsoft in claims against Alcatel. At no point did they tell Mr. Lin that they were accusing of infringement the very products Mr. Lin was installing and about which they were questioning him. (*See id.* at ¶¶ 14, 17.) At no point did they contact Alcatel's counsel. Instead they continued with the pretext that they were buying an Alcatel System to evaluate it for possible use throughout F&R's offices. Indeed, Ms. Elluru and Mr. Pond acted as though they were involved in the alleged evaluation of the newly-installed accused Alcatel System for wider use throughout F&R's offices around the country. Mr. Lin did not know that they were attorneys, and he worked with them and answered their questions as if they worked for a company whose sole role was as a business customer of Alcatel—not an adversary. (*See id.* at ¶¶ 14, 15, 23, 27.)

For the next four days, Ms. Elluru and Mr. Pond asked Mr. Lin detailed questions regarding the Alcatel System, and took copious notes of his answers. (*See id.* at ¶¶ 18-23.) The subject matter of the questions is significant—the questions related to the crux of Microsoft's allegations that the Alcatel System infringes the asserted patents. For example, the F&R attorneys questioned Mr. Lin regarding:

- "the functionality of My Assistant," one of the accused Alcatel System's software applications;
- "how the Alcatel System performed call routing," particularly "how call routing was or could be performed based on caller-identification or entries into a user's calendar in My Assistant or Microsoft Outlook";
- "how the Alcatel System was configured"; and
- "whether the Alcatel System could be used with a Microsoft Exchange Server"

(*See id.* at ¶¶ 18-19, 21-23.)

Mr. Lin believed the installation was legitimate. He had no idea that the F&R attorneys were deceiving him as to their identity and purpose. (*See id.* at ¶ 34.) Accordingly, Mr. Lin

answered their questions to the best of his knowledge, providing the F&R attorneys with information considered confidential to Alcatel and reserved for legitimate customers of the Alcatel System. (*See id.* at ¶¶ 23 & 27.) At one point, Ms. Elluru requested that Mr. Lin provide her with his cell phone number, which he did, so that she could communicate with him even after he left the F&R premises. (*See id.* at ¶¶ 23-24.)

In short, Microsoft's lawyers interrogated Mr. Lin regarding subjects that are at the very heart of Microsoft's allegations here and in the ITC Investigation. Instead of formally deposing Mr. Lin regarding the accused products as required under the Federal Rules of Civil Procedure, they surreptitiously and informally interrogated him for days under the pretext of evaluating the accused Alcatel system for F&R's internal use. These actions by F&R are particularly problematic because Mr. Lin's core expertise and job responsibilities with Alcatel concern the core allegations made by Microsoft in this case.

c. ***F&R Demands that Mr. Lin Return for Further Interrogation***

The installation process lasted four days, spanning from June 26 to June 29, 2007. (*See id.* at ¶ 18.) Apparently facing an impending deadline of July 11 for the submission of an infringement expert report in the ITC Investigation, F&R contacted Alliance following the installation and demanded that Mr. Lin return to the firm on July 3, 2007. (*See* Intal Decl., Ex. A (6/29/07 Email from R. Knapp to A. Intal, cc: S. Roos).) Alliance was concerned that it would lose the account if Mr. Lin was not sent back to troubleshoot and conduct training. (*See id.*) Specifically, Alcatel was informed by way of an email from Alliance that F&R was:

[redacted]

(*Id.*, Ex. C (6/29/2007 Email from R. Knapp to A. Intal).) Believing that this was a legitimate installation and business opportunity—including that Ms. Elluru actually was bringing in [redacted] and that Ms. Elluru actually was an F&R employee charged with evaluating internal phone systems— Alcatel arranged for Mr. Lin to return to F&R, as requested by Ms. Elluru. (*See id.* at ¶ 9.)

On July 2 and 3, 2007, F&R attorneys continued their *ex parte* examination of Mr. Lin. On July 2, Mr. Lin began training Ms. Elluru and Mr. Pond and, believing them to be legitimate customers, "provided them with confidential Alcatel information concerning the use and administration of the Alcatel system." (Lin Decl. at ¶ 27.) On July 3, Ms. Elluru and Mr. Pond sequestered Mr. Lin in a conference room and told him that they were trying to configure and operate the Alcatel System on their own, and that they wanted to use him as a resource to assist them in their efforts. Essentially Mr. Lin would act as on site technical support while they learned and trained on the accused Alcatel System. (*See id.* at ¶ 30.) Remarkably, they specifically sought his assistance in attempting to configure the Alcatel System in what Microsoft has contended is an infringing configuration, posing a series of questions "***directed primarily toward attempting to configure the Alcatel System to perform call routing based on entries in a user's Outlook or My Assistant calendar***."[5] (*See id.* at ¶ 30 (emphasis added).) Unaware of the issues in this litigation, Mr. Lin informed the F&R attorneys that their request could not be satisfied and that the System could not be configured as they requested. (*See id.* at ¶ 28.) Again, F&R's questioning veered far afield of any legitimate inquiry by F&R IT personnel,

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5 As set forth *infra*, the F&R attorneys' effort to modify the Alcatel System is particularly significant, as it echoes Microsoft's latest gambit to articulate a theory of infringement in the ITC Investigation. (*See* disc. *infra* at 12-13.)

in connection with customer training, and focused instead on the exact issues on which Microsoft bases its claims in this litigation.

Mr. Lin's return visit to F&R's office occurred during the week of Independence Day. (*See id.* at ¶¶ 27-30.) That same week, Microsoft's infringement expert, Mr. Chang (who already has been identified as a testifying expert in the ITC Investigation), was in another conference room at F&R's Washington, D.C. office. (*See* Ex.6 (Deposition of Jack H. Chang in the ITC Investigation, August 23, 2007, hereinafter "Chang Dep."), at 19:14-24.) Mr. Chang's holiday visit to the F&R offices stood out to him, as he knows "for a fact" that he was there "during the week of July 4." *Id.* at 19:21-22.

According to Mr. Chang's expert report in the ITC Investigation:

(Ex. 4 (Expert Report of Jack Chang in the ITC Investigation) at 21.) Notably, Mr. Chang testified that he was running tests on the Alcatel OXE system unwittingly installed and configured by Mr. Lin at F&R for purposes of compiling Mr. Chang's expert report during the week of July 4th (when Mr. Lin was placed in the F&R conference room). (*See* Ex. 6 (Chang Dep. (in the ITC Investigation)) at 19:14-22.) Moreover, Mr. Chang identified F&R attorney Joshua Pond—who interrogated Mr. Lin on July 3rd—as one of the people assisting him in "running [the] tests of the Alcatel OXE demonstration system" during that week. (*Id.* at 19:25-20:22.) The import of the foregoing events is inescapable: The F&R attorneys were

surreptitiously utilizing the confidential information provided by Mr. Lin in an effort to assist their expert, Mr. Chang, in his analysis and opinions regarding the Alcatel System.

The F&R attorneys' unsuccessful effort to have Mr. Lin assist them in modifying the Alcatel System reflects the fact that Microsoft, lacking evidence of infringement following extensive discovery in the ITC Investigation, apparently felt the need to manufacture support for its claims of infringement. Notably, in Mr. Chang's supplemental expert report, he opines that the claim limitations of the '289 and '439 patents are met because, [redacted] (Ex. 4 (Supplemental Expert Report of Jack Chang in the ITC Investigation) at 3 (emphasis added).) Alcatel's witnesses have made clear through depositions in the related proceedings that the documents on which Mr. Chang relied were related to functionality that was discussed but never implemented. Nevertheless, Mr. Chang then states, relying on the Alcatel System installed by Mr. Lin, that [redacted] (*Id.* at 4 (emphasis added).)

F&R did not inform Mr. Lin that the questions were coming from lawyers, that they were being asked for purposes of eliciting information relating to Microsoft's claims of infringement against Alcatel, that Microsoft's expert witness was in the same office preparing his report at the time, that their request to modify the system was a gambit to manufacture support (where none exists) for Microsoft's spurious allegations of infringement, or that they were providing that

expert information based on Mr. Lin's answers to their questions.[6] In other words, the F&R attorneys obtained confidential information from Mr. Lin under false pretenses and, improperly, are using it against Alcatel.[7]

C. **Alcatel's Discovery of the Misconduct**

While Mr. Lin waited in F&R's conference room during his second week of interrogation, he saw a Microsoft patent left there. (*See* Lin Decl. at ¶ 31.) Familiar with the fact that there had been patent litigation between Microsoft and Alcatel, Mr. Lin e-mailed his supervisor, Mr. Intal, on July 5, 2007, to inquire whether the installation was—as F&R led him to believe—legitimate. (*See id.* at ¶ 32; *id.*, Ex. E, (7/5/2007 Email from P. Lin to A. Intal).)

Mr. Intal promptly contacted Mr. Knapp at Alliance. Mr. Knapp looked into the situation by apparently contacting Miercom, and then ***assured Mr. Intal that the installation was*** [redacted] (*See* Intal Decl., Ex. G, (7/10/2007 Email from R. Knapp to A. Intal).) In addition, Alcatel was advised that [redacted] (*Id.*) Mr. Lin, however, was unavailable,

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6 Also during this second installation, Ahmed Davis, an F&R principal representing Microsoft in this litigation, was present and met with Mr. Lin. (*See* Lin Decl. at ¶ 28.) Mr. Davis, who has taken, defended or attended several depositions in the ITC Investigation, and whose name appears on the Amended Complaint in this action (*see* First Amended Complaint, dated May 30, 2007 (D.I. 15) at 9), also withheld his true identity and purpose from Mr. Lin. (*See* Lin Decl. at ¶¶ 28-29.) Mr. Davis holds himself out as admitted to practice in the District of Columbia and Virginia. *See* www.fr.com.

7 Microsoft's continued reliance on its ill-gotten gains is plainly evident in its recently-filed Responses to Alcatel's summary determination motions of non-infringement of the patents-in-suit in the ITC Investigation. For instance, in Microsoft's August 29, 2007, Response to Alcatel's motion as to the '064 and '357 patents in the ITC Investigation, Microsoft states that [redacted] infringes the patents. This is the same system that Mr. Lin installed, configured and was interrogated about by F&R while Mr. Chang was testing the system for his expert reports, and which F&R sought (unsuccessfully), through Mr. Lin's unwitting assistance, to configure in the allegedly-infringing manner.

and did not return to F&R, nor did Mr. Lin have any further communications with F&R lawyers. (*See id.*; Lin Decl. at ¶ 33.)

Finally, on August 14, 2007, Alliance apparently deduced that the installation was not, despite past assurances, legitimate, and when an Alliance employee relayed these misgivings to Alcatel, the matter was referred to Alcatel's corporate counsel. (*See* Declaration of Jason Amiss, hereinafter "Amiss Decl." at ¶¶ 1-2, 3, 5.)

Following a full investigation, Latham & Watkins LLP discovered the misconduct, contacted F&R and sought, twice: (1) an immediate explanation, and (2) all documents relating to the issue. (Malionek Decl., Exs. A, C.) Because F&R failed to provide either, Alcatel brought this Motion one week after making the first request.

D. Professor Morgan's Expert Opinions Regarding F&R's Ethical Violations, "Deception" and "Offensive" Conduct

As part of its investigation, Alcatel consulted with Thomas D. Morgan, a law professor with over forty years' experience and one of the preeminent ethics scholars in the country. He has served as an Associate Reporter responsible for both sets of extensive revisions to the Model Rules during this decade, and as an Associate Reporter for the American Law Institute's RESTATEMENT OF THE LAW (THIRD): THE LAW GOVERNING LAWYERS, from 1986 to its publication in 2000. He has published on hundreds of topics of legal ethics over his career. In Professor Morgan's opinion, F&R and its attorneys violated several of the Model Rules, including Rules 4.1, 4.2, 4.3, 4.4 and 8.4(c), as discussed in more detail below, as well as the ethics rules of jurisdictions in which the F&R attorneys are admitted. Specifically, in Professor Morgan's opinion, by its questioning of Mr. Lin without the consent of Alcatel's counsel, F&R conducted itself unethically, and "deceived Po Ching Lin into turning over" Alcatel's

confidential information. (Morgan Decl. at ¶¶ 6c, 6d.) This violated Model Rule 4.2, in his opinion.

"Even more offensive," in Professor Morgan's view, was F&R's failure to identify itself to Mr. Lin or its involvement on Microsoft's behalf in these proceedings against Alcatel, in violation of Model Rule 4.3. As Professor Morgan puts it: "Any reasonable reading of the facts in this matter leaves no doubt that the Fish & Richardson attorneys knew that Po Ching Lin did not even know they were attorneys, much less that they represented Microsoft in litigation with Alcatel over the very matters about which they were questioning him." (*Id.* at ¶ 6e.) F&R was obligated to correct this misunderstanding by identifying itself and its true purpose, but failed to do so.

Regarding F&R's overall conduct, Professor Morgan is of the opinion that F&R violated Model Rule 8.4(c), which prohibits a lawyer from engaging in "conduct involving dishonesty, fraud, deceit or misrepresentation," as well as Rule 4.1(a), which prohibits a lawyer from knowingly making "a false statement of material fact or law to a third person." As stated by Professor Morgan:

> It is hard to imagine a case more accurately described by those provisions. At least based on the facts I have seen, the Fish & Richardson lawyers' intent to deceive seems clear and it is simply irrelevant that much of the deception was by failing to correct misunderstandings and not exclusively by making statements that were affirmatively false.

(*Id.* at ¶ 6g.)

Finally, Professor Morgan's opinion is that all supervisory attorneys aware of the misconduct, and not just the individual attorneys referenced above, are themselves responsible

for the ethical misconduct. (*See id.* at ¶ 7 (citing, among other things, Model Rule 5.1's duty of proper supervision).)[8]

IV. ARGUMENT

This Court has the inherent authority "to supervise the professional conduct of attorneys appearing before it," including the power to disqualify attorneys. *United States v. Miller*, 624 F.2d 1198, 1201 (3d Cir. 1980) (affirming order disqualifying counsel and recognizing that "disqualification is ordinarily the result of a finding that an ethical rule has been violated"); *In re American Airlines, Inc.*, 972 F.2d 605, 611 (5th Cir. 1992) (reversing denial of motion to disqualify counsel and holding that a court must "take measures against unethical conduct occurring in connection with any proceeding before it") (quoting *Woods v. Covington County Bank*, 537 F.2d 804, 810 (5th Cir. 1976)). Rule 83.6(d)(2) of the Local Rules of Civil Practice and Procedure provides that "all attorneys admitted or authorized to practice before this Court, including attorneys admitted on motion or otherwise, shall be governed by the Model Rules . . . as amended from time to time." D. Del. LR 83.6(d).

Attorneys appearing before the District of Delaware—including authoring and filing complaints in this Court, as the F&R attorneys referenced above have done—who violate the Model Rules are subject to the discipline of the Court, irrespective of where they are admitted. *See United States v. Gordon*, 334 F. Supp. 2d 581, 585 n.7 (D. Del. 2004) (denying *pro hac vice* application for violation of "the ABA's Model Rules of Professional Conduct, . . . [which] set the standards for professional conduct for attorneys appearing before the Court").

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[8] Professor Morgan also opines that F&R violated various other Model Rules and the ethics rules of the jurisdictions in which the F&R attorneys referenced above hold themselves out as admitted, as well as the provisions of the Delaware Lawyers' Rules of Professional Conduct, which are identical to the Model Rules. (*See* Morgan Decl. at ¶ 6-7.)

When presented with violations of the Model Rules, or conduct that is otherwise deceitful or dishonest and has the potential to prejudice a party to a litigation, courts frequently order disqualification of law firms, exclusion of expert witnesses and other sanctions.[9] Here, respectfully, the Court should disqualify F&R, prohibit Mr. Chang from having any involvement (including but not limited to as an expert witness) on Microsoft's behalf in this case and order other sanctions as discussed below. Moreover, given that F&R is Microsoft's fiduciary representative in these proceedings, pursuing Microsoft's claims of infringement regarding the Alcatel System, whether Microsoft is involved in the misconduct is highly relevant.[10] We request that this Court also order the production by F&R and Microsoft, and exclusion, of all documents and information related to and detailing the improper conduct described in the concurrently-filed Brief in Support of this Motion, as well as further discovery into the issue, including depositions of F&R, Microsoft and all those involved in these actions.

A. F&R's Improper Interrogations of Mr. Lin

As set forth below, and as confirmed by the Declaration of Professor Morgan, F&R ignored even the most basic ethics rules applying to all lawyers in the course of its multiple *ex*

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9 *See, e.g., Penda Corp. v. STK, L.L.C.*, No. 03-5578, 03-6240, 2004 U.S. Dist. LEXIS 13577, at *20-21 (E.D. Pa. July 16, 2004) (ordering production of information and documents related to *ex parte* contact and precluding any use of the same), *transferred by* 2004 U.S. Dist. LEXIS 18235 (E.D. Pa. Sept. 7, 2004); *Faison v. Thornton*, 863 F. Supp. 1204, 1218 (D. Nev. 1992) (disqualifying counsel for violating no-contact rule and ordering any "statements, notes, memoranda, tape recordings, correspondence, facsimile transmission cover sheets, and all other recordings and documents generated as a result of [their] contacts"); *MMR/Wallace Power & Industrial, Inc. v. Thames Assoc.*, 764 F. Supp. 712, 719 (D. Conn. 1991) (ordering disqualification and citing Rules 4.2, 8.4 and 1.6)).

10 Because the Alcatel System is an expensive piece of equipment, presumably F&R did not purchase the System without significant consideration and planning.

parte interviews of Mr. Lin.[11] Section 4 of the Model Rules concerns an attorney's duties when communicating with non-clients as well as adverse parties concerning the subject matter of a representation. Whether considered against the backdrop of Rule 4.2, Rule 4.3, or any other rules regarding such communications (*see, e.g.*, Morgan Decl. at ¶ 6) (discussing F&R's violations of Rules 4.1, 4.2, 4.3, 4.4 and 8.4(c)), F&R's behavior was inappropriate. *See Gordon*, 334 F. Supp. at 584 n.7 ("Pursuant to Rule 83.6(d)(2) . . . the ABA's [Model Rules] . . . set the standards for professional conduct for attorneys appearing before the Court.").[12]

1. Rule 4.2

Rule 4.2 prohibits an attorney from having *ex parte* contact, regarding a subject of representation, with a constituent of an adverse "represented party" without the consent of opposing counsel:

> In representing a client, a lawyer shall not communicate about the subject of the representation with a person the lawyer knows to be represented by another lawyer in the matter, unless the lawyer has the consent of the other lawyer or is authorized to do so by law or a court order.

MODEL RULES OF PROF'L CONDUCT R. 4.2 (2003). Rule 4.2—commonly known throughout the profession as the "no contact rule"—is intended to prevent "the uncounselled disclosure of information relating to the representation," which can undermine the entire judicial process. MODEL RULES OF PROF'L CONDUCT R. 4.2 cmt. 1 (2003). As one commentator has noted in the context of patent infringement litigation, an adverse attorney may not "seek an advantage for his client by circumventing opposing counsel and communicating directly with the adverse party."

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11 Professor Morgan also reviewed the corresponding provisions of the Delaware Lawyers' Rules of Professional Conduct, which are identical to the Model Rules, and opined that F&R violated those provisions. (*See* Morgan Decl. at ¶ 6.)

12 Alcatel alleges that F&R's conduct violated Model Rules 4.1, 4.2, 4.3, 4.4 and 8.4(c), which "are identical to the corresponding provisions of the Delaware Lawyers' Rules of Professional Conduct." (Morgan Decl. at ¶ 6.)

Phillip Barengolts, *Ethical Issues Arising From the Investigation of Activities of Intellectual Property Infringers Represented by Counsel*, 1 NW. J. TECH. & INTELL. PROP. 3 at 343, 340-41 (2003).

In the case of a corporation such as Alcatel, an employee is "represented" if, for example, his or her statement may bind the organization regarding the subject of the litigation, or where the employee is capable of making an admission on behalf of the organization. *See* MODEL RULES OF PROF'L CONDUCT R. 4.2 cmt. 7 (2003); ABA Comm. on Ethics and Prof'l Responsibility, Formal Op. 95-396 (1995). Given his position and level of responsibility with respect to the Alcatel System—the very subject matter of this litigation—Mr. Lin falls within this definition. *Id.* ("The Comment to Rule 4.2, however, makes plain that the term 'represented party' refers not only to those with managerial responsibilities but to anyone who may legally bind the organization with respect to the matter in question.").

Upon meeting Mr. Lin and learning of his background and expertise regarding the products at issue in this action, F&R violated Rule 4.2 by interrogating Mr. Lin about those products without the knowledge and consent of Alcatel's counsel. (*See* Morgan Decl. at ¶ 6.) F&R's conduct had the effect of "going behind the back of one's adversary," which "results in manifestly unfair trial practice that was meant to be avoided by adoption of the Federal Rules of Civil Procedure." *Midwest Motor Sports, Inc. v. Arctic Cat Sales, Inc.*, 144 F. Supp. 2d 1147, 1156 (D.S.D. 2001) (sanctioning attorneys who sent an investigator to visit opposing party's retail facilities, where the investigator, who did not identify himself as such, questioned sales staff regarding the subject of the litigation), *aff'd*, 2003 U.S. App. LEXIS 21188 (8th Cir. Oct. 20, 2003).

2. Rule 4.3

Alternatively, even if Mr. Lin were assumed not to be a "represented party" under Rule 4.2, F&R's conduct still violated the applicable ethical rules. Model Rule 4.3 provides that:

> In dealing on behalf of a client with a person who is ***not*** represented by counsel, a lawyer shall not state or imply that the lawyer is disinterested. When the lawyer knows or reasonably should know that the unrepresented person misunderstands the lawyer's role in the matter, the lawyer shall make reasonable efforts to correct the misunderstanding.

MODEL RULES OF PROF'L CONDUCT R. 4.3 (2003).

In the context of a lawsuit involving a corporation, Rule 4.3 mandates that a lawyer contacting someone affiliated with "an opposing corporate party make clear the nature of the lawyer's role in the matter giving occasion for the contact, including the identity of the lawyer's client," and the fact that the attorney's interests are adverse to the company. ABA Comm. on Ethics and Prof'l Responsibility, Formal Op. 91-359 (1991); *see also* MODEL RULES OF PROF'L CONDUCT R. 4.3 cmt. 1 (2003) ("In order to avoid a misunderstanding, a lawyer will typically need to identify the lawyer's client and, where necessary, explain that the client has interests opposed to those of the unrepresented person.").

Furthermore, as the Restatement articulates, every lawyer "is subject to a duty of disclosure when the lawyer knows or reasonably should know that the unrepresented nonclient misunderstands the lawyer's role in the matter and when failure to correct the misunderstanding would prejudice the nonclient or the nonclient's principal." RESTATEMENT (THIRD) OF LAW GOVERNING LAW. § 103 (2000).[13]

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[13] *Accord University Patents, Inc. v. Kligman*, 737 F. Supp. 325, 328 (E.D. Pa. 1990) (sanctioning attorneys who, *inter alia,* failed to observe requirement that interviewing counsel must (1) disclose his representative capacity to the interviewee; (2) state his reasons for seeking the interview; and (3) inform the individual of the right to refuse to be interviewed) (citing *Siguel v. Trustees of Tufts College*, No. 88-0626, 1990 U.S. Dist. LEXIS 2775 at *19-20 (D. Mass. Mar. 12, 1990); *Lizotte v. New York City Health &*

Here, F&R's identity was not revealed at all until just before the installation. (*See* disc. *supra* at § III(B)(1).) Moreover, none of the F&R attorneys who had contact with Mr. Lin explained the firm's role in these proceedings against Alcatel, involving the very System on which that Mr. Lin was installing and training them. (*See id.* at § III(B)(2)(b).) Because Mr. Lin reasonably believed that he was overseeing an installation for a company whose sole relevant identity was as a legitimate Alcatel customer (a belief F&R created under false pretenses), it was incumbent upon F&R to inform Mr. Lin of its identity and interest in this action. (*See* Morgan Decl. at ¶ 6(e).) *See In re Air Crash Disaster*, 909 F. Supp. 1116, 1125-26 (N.D. Ill. 1995) (granting defendants' motion for sanctions where plaintiffs' lawyers sent pilots of opposing party an "independent survey"); *X-It Prod., L.L.C. v. Walter Kidde Portable Equip., Inc.*, 227 F. Supp. 2d 494, 520 (E.D. Va. 2002) (lawyer who allowed unrepresented defendant to believe lawyer was neutral when in fact he worked for plaintiff found to have violated Rule 4.3). Rather than identifying themselves to Mr. Lin or taking any steps to correct the misunderstanding about their adverse interests concerning the Alcatel System, however, the F&R attorneys perpetuated the pretext, even demanding that Mr. Lin personally return to F&R for purported "training" on a day when Microsoft's expert was in another room in F&R's office preparing his expert report so that

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Hosp. Corp., No. 85 Civ. 7548, 1990 U.S. Dist. LEXIS 2747 at *15 (S.D.N.Y. Mar. 13, 1990) (requiring that when employees of represented hospital are contacted *ex parte*, they must be informed of their right "to have counsel present")); *Morrison v. Brandeis University*, 125 F.R.D. 14, 19-20 (D. Mass. 1989) (setting forth similar guidelines); *Bey v. Arlington Heights*, No. 88 C 5479, 1989 U.S. Dist. LEXIS 10183 at * 3 (N.D. Ill. Aug. 28, 1989) (employees of represented party contacted *ex parte* are "entitled to know that the interview is at the behest of plaintiff, that it is their choice whether or not to respond, and that they may have their own or defendant's attorney present, if they wish"); *Upjohn Co. v. Aetna Casualty*, No. 4-88-CV-124, 1990 U.S. Dist. LEXIS 12900 at * 2 (W.D. Mich. July 13, 1990) (excluding all evidence gathered through *ex parte* interviews where the interviewer failed to establish that the interviewee was unrepresented, identify him/herself as an attorney for the adverse party in pending litigation, and state the purpose of the communication).

they could presumably relay information from Mr. Lin to the expert. This was a serious violation of Model Rule 4.3. (*See* Morgan Decl. at ¶ 6(e).)

Although attorneys are free to conduct informal discovery for purposes of litigation, they cannot use deception to do so. "Lawyers (and investigators) cannot trick protected employees into doing things or saying things they otherwise would not do or say." *Hill v. Shell Oil Co.*, 209 F. Supp. 2d 876, 880 (N.D. Ill. 2002).[14] Had Alcatel known in advance the identity of the so-called "customer" and the true purpose of the installation and the requests for "training" by Mr. Lin, Alcatel never would have allowed F&R's interrogations of Mr. Lin outside the presence of counsel. Moreover, had Mr. Lin known these facts, he never would have supplied F&R and Microsoft with Alcatel's confidential information without first consulting with counsel. Through a series of deceptive acts, F&R went far beyond any legitimate discovery, succeeded in extracting Alcatel's confidential information about its products outside the avenues of discovery provided in the pending litigations, and improperly put Mr. Lin in the position of answering questions designed solely to manufacture support—where none in fact exists—for Microsoft's infringement claims.[15] As discussed in further detail below, this wrongdoing is the type of misconduct which mandates the sanctions requested by Alcatel.

B. F&R's Deceptive Conduct

The "Rules of Professional Conduct mandate that lawyers may not, can not and must not engage in conduct involving deceit. The ends do not justify the means." *People v. Pautler*, No.

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14 *See also Midwest Motor Sports, Inc. v. Arctic Cat Sales, Inc.*, 144 F. Supp.2d 1147, 1150 (D.S.D. 2001) ("[T]he duty of an attorney to his client demands nothing more than an honest effort to secure justice for such client; it does not permit, neither does it excuse, a resort to deception. . . .") (quoting *In re Wilmarth*, 172 N.W. 921, 925 (S.D. 1919)), *aff'd*, 2003 U.S. App. LEXIS 21188 (8th Cir. Oct. 20, 2003).

15 Upon learning from Mr. Lin—confirming what has been made obvious through discovery in this action—that the accused Alcatel System could not be configured in the allegedly infringing manner, Microsoft should have dropped its complaint.

00PDJ016, 2001 Colo. Discipl. LEXIS 10, at *24 (Colo. Apr. 2, 2001), *aff'd*, 47 P.3d 1175 (Colo. 2002). Indeed, Rule 8.4(c) states that "[i]t is professional misconduct for a lawyer to . . . engage in conduct involving dishonesty, fraud, deceit or misrepresentation." MODEL RULES OF PROF'L CONDUCT R. 8.4(c) (2003) For purposes of these precepts, "[a] misrepresentation may be a lie, a half-truth, or even silence." *In re Conduct of Gatti*, 8 P.3d 966, 973 (Or. 2000).

At bottom, F&R's conduct involves a course of conduct colored by deceit. For example:

- F&R arranged for the installation through Miercom and apparently instructed Miercom to keep its identity a secret (disc. *supra* at § III(B)(1));
- F&R misrepresented the purpose of the installation, stating that the installation was to evaluate the system for potential use nationwide (*id.*);
- F&R learned that an Alcatel employee was participating in the installation, yet failed to give any notice to Alcatel's counsel about F&R's plan to interrogate him (*id.* at § III(B)(2)(b));
- F&R misrepresented to Mr. Lin its purpose behind its detailed questions, inducing him into revealing confidential information reserved for legitimate customers (*id.*);
- Following installation, F&R requested, again under false pretenses, that Mr. Lin return to provide it with further "training" (*id.* at § III(B)(2)(c)); and
- F&R and Microsoft have used, and continue to use, the improperly-gained confidential information against Alcatel (*id.*; disc. *infra* at § IV(E)).

In addition to the prohibition on such misleading conduct, courts recognize that attorneys have an obligation to respect the confidential information of others. Courts specifically have noted that Model Rule 1.6 (titled "Confidentiality of Information") "imposes upon attorneys a correlative duty to refrain from inducing others to disclose confidential matters." *Rentclub, Inc. v. Transamerica Rental Fin. Corp.*, 811 F. Supp. 651, 654 (M.D. Fla. 1992); *accord, MMR/Wallace Power & Industrial, Inc. v. Thames Assoc.*, 764 F. Supp. 712, 718-19 (D. Conn. 1991) ("Fundamental to the client-lawyer relationship is the lawyer's duty not to reveal the confidences of his client, a corollary of which is the duty not to seek to cause another person to do the same. . . .").

In *Rentclub*, the plaintiff's counsel retained as a "consultant" a former employee of an opposing party who possessed that party's proprietary and confidential information. *Rentclub*, 811 F. Supp. at 654. The *Rentclub* court reasoned that, by engaging the consultant, the counsel "induced [the consultant] to disclose to it confidential matters relating to [the opposing party's] managerial practices . . . strategies, theories, and mental impressions. . . ." *Id.* Because the consultant was privy to "confidential and proprietary information belonging to [the opposing party]," retaining the consultant created an "irrefutable presumption" of improper inducement. *Id.* And because the attorneys' conduct created an "appearance of professional impropriety," their disqualification was required under Rule 1.6. *See also MMR/Wallace*, 764 F. Supp. at 714-17 (disqualifying law firm because it improperly induced an employee of the opposing party to divulge confidential and proprietary information).

Similarly, in Mr. Lin's position as a senior Alcatel engineer and his unique expertise in the Alcatel System, his knowledge of the accused products is proprietary; indeed, Mr. Lin is one of Alcatel's few employees with the specialization required to install, configure and train customers on the Alcatel System. (*See* Intal Decl. at ¶ 6.) There thus is an "irrefutable presumption" that F&R improperly induced him to reveal such confidential information by engaging him to install and "train" F&R (not to mention Microsoft and its expert) on the Alcatel System and to assist F&R, unwittingly, in an effort to manufacture support for Microsoft's claims. Indeed, it was because of Mr. Lin's specialized knowledge that F&R insisted on asking for Mr. Lin, by name, to return. *See Rentclub*, 811 F. Supp. at 654. Therefore, similar sanctions as imposed in *Rentclub*, and other cases, should follow. *Rentclub*, 811 F. Supp. at 658 (disqualifying counsel); *see also MMR/Wallace*, 764 F. Supp. at 714-17 (same); *Best Western Int'l v. CSI Int'l Corp.*, No. 94-CIV-0360-LMM, 1995 U.S. Dist. LEXIS 12314, at *6 (S.D.N.Y.

Aug. 25, 1995) (same); *Pautler*, 2001 Colo. Discipl. LEXIS 9, at *46-47 (suspending offending attorney from the practice of law).[16]

C. F&R Should Be Disqualified for Violating the Ethical Rules Governing Attorney Conduct to the Prejudice of Alcatel

The power to disqualify an attorney from a particular action emanates from the "inherent powers of any federal court [to oversee] the admission and discipline of attorneys practicing before it." *In re Corn Derivatives Antitrust Litig.*, 748 F.2d 157, 160 (3d Cir. 1984) (disqualifying counsel upon finding of an ethical violation involving the misuse of confidential information under the Model Rules). As underscored by another court following the law of this circuit, ethical misconduct in the course of a litigation should not be tolerated. *Inorganic Coatings v. Falberg*, 926 F. Supp. 517, 520 (E.D. Pa. 1995). In *Inorganic Coatings*, the defendant contacted plaintiff's counsel to discuss settlement. Plaintiff's counsel advised the defendant that it would be best if the communications were between counsel only, but continued speaking with the defendant anyway about matters relevant to the litigation. The court concluded that, because such an *ex parte* conversation "would severely prejudice the

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16 F&R attorneys thus far known to have been involved in the misconduct are held out by F&R to have been admitted to the bars of Washington, D.C., Virginia, and Texas. The ethics rules in those jurisdictions are similarly based upon the same ABA Model Rules discussed above. *See* American Bar Association, Model Rules of Professional Conduct, Dates of Adoption by States, *available at*: http://www.abanet.org/cpr/mrpc/alpha_states.html. Courts enforcing the rules of these F&R attorneys' jurisdictions order sanctions for violations of the rules of professional conduct, and this Court should do the same. *See, e.g., Yukon Pocahontas Coal Co. v. Consolidation Coal Co.*, No. CL04-91, 2006 Va. Cir. LEXIS 195 at * 68 (Va. Cir. Ct. September 18, 2006) (disqualifying law firm for *ex parte* contact with constituents of represented party); *Shelton v. Hess*, 599 F. Supp. 905, 906, 911 (D. Tex. 1984) (disqualifying attorney for communicating with a represented party, a necessary result where a party has been "unfairly prejudiced"); *In re Roxborough*, 692 A.2d 1379 (D.C. 1997) (suspending attorney from practice for violating District of Columbia Rules of Professional Conduct, including Rule 4.2).

[d]efendants, disqualification is required." *Inorganic Coatings*, 926 F. Supp. at 520 (disqualification is required where the substance of the *ex parte* discussion "went to the nub of the lawsuit . . . [in order] 'to protect [the adverse party] from any unfair advantage [the attorney] might have achieved by the improper [contact]'") (quoting *Papanicolaou*, 720 F. Supp. at 1085). The facts in this case are far more egregious.

Courts, as well as the bar, have a responsibility to maintain public confidence in the legal profession. Thus a court may disqualify an attorney for not only acting improperly but also for failing to avoid the appearance of impropriety." *Kramer v. Scientific Control Corp.*, 534 F.2d 1085, 1089 (3d Cir. 1976) (ordering disqualification of counsel, even though such disqualification "at this late date would deprive the [client] of the familiarity with the case [counsel] developed during its pendency") (quoting *Richardson v. Hamilton International Corp.*, 469 F.2d 1382, 1385-86 (3d Cir. 1972) (disqualifying counsel who had access to confidential information, even though "the exact nature of information he received is unknown")); *Essex County Jail Annex Inmates v. Treffinger*, 18 F. Supp. 2d 418, 439 (D.N.J. 1998) (disqualifying counsel for improper conduct, even in the absence of a specific ethical rule violation). Because ethical conduct is essential to the administration of justice, "any doubt is to be resolved in favor of disqualification." *Hull v. Celanese Corp.*, 513 F.2d 568, 571 (2d Cir. 1975).

Alcatel is sensitive to the notion that parties generally should be afforded their choice of counsel and the fact that the hearing is scheduled to commence in less than six weeks. Alcatel respectfully submits, however, that the conduct at issue has been sufficiently prejudicial to warrant disqualification in light of the paramount interest in fundamental fairness. *See Hull*, 513 F.2d at 571-72 ("Recognizably important [is a party's] right to counsel of [its] choice. . . . T[his] consideration must yield, however, to considerations of ethics which run to the very

integrity of our judicial process."); *In re Temp-Way Corp.*, 95 B.R. 343 (D. Pa. 1989) (disqualifying counsel on the eve of trial); *Erickson v. Newmar Corp.*, 87 F.3d 298 (9th Cir. 1996) (improper contacts with expert witness employed by opposing counsel was prejudicial and required reversal and remand for a new trial).

F&R's blatant disregard of Rules 4.2 and 4.3 alone merits the disqualification of the firm, as well as the other relief requested herein. *See, e.g., Hammond v. Junction City*, 167 F. Supp. 2d 1271, 1289 (D. Kan. 2001) (holding that disqualification was required to remedy a Rule 4.2 violation in which plaintiff's counsel had *ex parte* communications with a managerial employee that would taint the trial); *Papanicolaou v. Chase Manhattan Bank*, 720 F. Supp. 1080, 1087 (S.D.N.Y. 1989) (disqualification ordered for violation of Rule 4.2); *Monsanto Co. v. Aetna Casualty & Surety Co.*, 593 A.2d 1013, 1021 (Del. Super. Ct. 1990) (finding violation of Delaware Lawyers Rules for Professional Conduct Rule 4.3, which is identical to Model Rule 4.3, and ordering disclosure of investigators' *ex parte* contacts and production of "all notes, reports and/or documents regarding the same").

Indeed, disqualification has been deemed appropriate where there is even the mere *possibility* of prejudice to a party resulting from an opposing counsel's violation of ethical rules. The decision in *Hammond*, in which the court found that "Plaintiff's counsel improperly acquired information about matters significantly impacting th[e] lawsuit," is instructive. In that case, because the *ex parte* communications were not recorded, it was "thus impossible for the court to learn of the exact details of the discussions and to ascertain the potential advantage that the ex parte communications may have provided." *Hammond*, 167 F. Supp. 2d at 1289. The court concluded that, under those circumstances, disqualification was warranted. The same reasoning applies with even greater force in this case. Indeed, there can be little doubt that Ms.

Elluru and Mr. Pond interrogated Mr. Lin concerning calendar-based routing to support Microsoft's faltering infringement theories. Put simply, Ms. Elluru and Mr. Pond questioned the Alcatel engineer *ex parte* for almost an entire day on Microsoft's core infringement theories under the pretext of being interested in purchasing an Alcatel Unified Messaging system. The extent of the damage done by F&R's misconduct runs deep, having made its way to Microsoft's expert reports and been made a part of F&R's litigation strategy. Therefore, even though the full extent to which F&R has shared the improperly gained information remains unknown, what is known is more than enough to warrant F&R's disqualification from this action. *See, e.g., Best Western*, 1995 U.S. Dist. LEXIS 12314, at *3 ("[c]onduct that merely suggests that one side might enjoy the disclosure of confidential information may warrant disqualification") (citing *Hull*, 513 F.2d at 572).

The facts indicate that F&R's misconduct was hardly isolated in time or scope. Instead, the improper *ex parte* interrogations occurred over a period of at least two weeks, and ***F&R's questioning concerning the Alcatel System and the issues involved in this litigation*** was intensive. (*See* disc. *supra* § III(B)(2)(b) & (c).) Moreover, the occurrence of those communications was by no means inadvertent. F&R went out of its way to accomplish the installation of the system, at a cost of thousands of dollars, and specifically asked that Mr. Lin return to F&R for additional interviews (albeit under the guise of a request for additional "training"). (*See id.* at § III(B)(2)(c).) Nor can the improper fruit of the misconduct feasibly be excised. The information improperly obtained by F&R has been incorporated into the fabric of its litigation strategy and expert opinions concerning infringement. (*See id.*)

Finally, as Professor Morgan concludes, this ethical misconduct may be attributed beyond the attorneys referenced by name above, and throughout F&R. (*See* Morgan Decl. at ¶

7.) Indeed, the confidential information improperly obtained by the F&R attorneys is imputed throughout F&R, warranting disqualification of the firm. *See Inorganic Coatings*, 926 F. Supp. 518 (plaintiff's counsel and his firm disqualified after attorney had *ex parte* communications with defendant when defendant called his office); *Hammond*, 167 F. Supp. 2d at 1289 (disqualifying a firm where one of its attorneys made an improper *ex parte* contact with an adversary's employee); *People ex rel. Dept. of Corporations v. SpeeDee Oil Change Systems, Inc.*, 20 Cal. 4th 1135, 1144 (1999) (vicarious disqualification of entire firm where one "of counsel" attorney, who played no role in the firm's representation of its client, was presumed to have been exposed to counterparty's confidential information); *Republic Servs. v. Liberty Mut. Ins. Co.*, No. 03-494-KSF, 2006 U.S. Dist. LEXIS 77363, at *31-32 (D. Ky. 2006) (disqualifying entire firm because one of its attorneys had acquired confidential information from the counterparty); *Cobb Publishing v. Hearst Corp.*, 907 F. Supp. 1038, 1050 (D. Mich. 1995) (disqualifying firm and presuming that client confidences had been shared throughout the firm because "a principal in a firm is presumed to have supervisory authority over other lawyers in the firm, and, presuming that lawyers conform their conduct to the requirements of the Rules of Professional Conduct, such principals must be presumed to have sufficient involvement in cases being handled by their firms that they can properly exercise their supervisory responsibilities") (citing MODEL RULES OF PROF'L CONDUCT R. 5.1(c)(2). As recognized by the court in *Cobb*, and fully applicable to F&R in this case, "[w]hen one attorney is infected with privileged information, the other attorneys at the firm are presumed to become contaminated and must also become disqualified." *Cobb*, 907 F. Supp. at 1050 (quoting *Papanicolaou*, 720 F. Supp. at 1087).

In view of the foregoing circumstances, including the severity of F&R's misconduct, disqualification of F&R is necessary to ensure that Microsoft does not benefit from the improper conduct of its attorneys.[17]

D. Microsoft's Expert, Jack Chang, Should Be Prohibited From Having Any Involvement In This Or Related Actions

As noted, Mr. Chang's opening expert report in the ITC Investigation – premised on his tests of the [redacted] – was served on July 11, 2007, a mere eight days after F&R's second interrogation of Mr. Lin. (*See* Ex. 4 (July 11, 2007 Expert Report of Jack Chang in the ITC Investigation).) His "testing" of the system took place the week of July 4th – the same week that Mr. Lin was asked to return to F&R under the guise of a need for "additional training and system configuration." (*See* Lin Decl. at ¶¶ 27-30; disc. *supra* at § IV(A)(2).)

As set forth above, the facts show that Mr. Chang's assistance to Microsoft in these actions, and his proferred expert opinions, are premised largely on his evaluation of the Alcatel System that was installed and configured based on F&R's deception. (*See* Ex. 6 (Chang Dep.) (in the ITC Investigation), at 10:15-21; 11:20-25.) Mr. Chang was present at F&R's offices while Mr. Lin was placed in another room for interrogation by F&R attorneys about the Alcatel System. Meanwhile, Mr. Chang in fact was assisted in his testing by Mr. Pond, who

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17 *See, e.g., Arnold v. Cargill Inc.*, No. 01-2086, 2004 U.S. Dist. LEXIS 19381, at *23 (D. Minn. Sept. 24, 2004) (ordering disqualification and noting that "[t]his is not simply a situation where Plaintiffs' counsel contacted a prospective witness with knowledge of underlying facts relevant to their investigation. Here, [plaintiff] cultivated its relationship with . . . a former highly placed employee . . . who had extensive knowledge of the systems at issue in this suit. . . "); *Faison v. Thornton*, 863 F. Supp. 1204, 1213 (D. Nev. 1992) ("[a]n attorney who innocently, mistakenly or negligently conducts ex parte communications with a party represented by counsel will still violate [the ethical standards];" ordering disqualification of counsel, exclusion of the evidence obtained during the ex parte communications, and production of the statements and information obtained during the communications).

simultaneously was telling Mr. Lin that he was "going to try and configure and operate the Alcatel System" with Mr. Lin's assistance. (*Compare id.* at 17:21-23, 19:14-20:6 *with* Lin Decl. at ¶ 30.)

Because Mr. Chang's opinions plainly are based, in part, on information obtained improperly by F&R's attorneys, the use of those opinions for any purpose would be unfairly prejudicial to Alcatel. (*See* disc. *supra* at § IV(D).) Like F&R, Mr. Chang cannot "unring the bell" regarding the information he learned as a result of F&R's misconduct. He cannot simply be instructed to forget the information he learned as a result of F&R's improper conduct. *See Cordy v. Sherwin-Williams Co.*, 156 F.R.D. 575, 582 (D.N.J. 1994) (opposing party provided an expert witness with confidential information before the expert witness switched sides in the litigation and the court ordered disqualified the expert because "[i]t is simply not possible for [the expert] to ignore what he learned"). Mr. Chang relied on this information in conducting his analysis of the Alcatel System, and in forming his expert opinions. Mr. Chang therefore should be disqualified from participating in this litigation and prohibited from assisting Microsoft in any way in this or related proceedings, as the improperly-gained information would, at the very least, "subliminally affect his testimony and assessment of facts." *Cordy*, 156 F.R.D. at 582 (quoting *Michelson v. Merrill Lynch Pierce Fenner & Smith, Inc.*, No. 83-Civ-8898, 1989 U.S. Dist. LEXIS 3013, at *10 (S.D.N.Y. Mar. 28, 1989)); *Campbell Indus. v. M/V Gemini*, 619 F.2d 24, 27 (9th Cir. 1980) (excluding witness' testimony due to counsel's misconduct); *Clark v. Pennsylvania R.R. Co.*, 328 F.2d 591, 594-95 (2d Cir. 1964) (same); *see also Space Systems/Loral v. Martin Marietta Corp.*, No. 95-20122, 1995 U.S. Dist. LEXIS 22305, at *5 (N.D. Cal. Nov. 15, 1995) ("Federal courts have the inherent power to disqualify expert witnesses in certain circumstances to protect the integrity of the adversary process and to

promote public confidence in the legal system.") (citing *Wang Laboratories, Inc. v. Toshiba Corp.*, 762 F. Supp. 1246, 1248 (E.D. Va. 1991)).

E. All Evidence Relating To The Improperly-Obtained Information, Including The Fruits Of Such Information, Must Be Produced And Assessed To Determine The Extent Of The Wrongdoing And Prejudice To Alcatel

While the available facts establish wide-ranging misconduct by F&R, Alcatel necessarily does not know the ultimate breadth of that conduct. Consistent with the law of this circuit, only an order requiring the production by Microsoft and F&R of all evidence relating to the misconduct will allow the litigants and this Court to identify the full extent of the prejudice to Alcatel. *See Penda*, 2004 U.S. Dist. LEXIS 13577, at *20-21 (ordering exclusion and production of information from improper ex parte contact). Both Alcatel and this Court need to know who is aware of this misconduct and the underlying information extracted from Mr. Lin, as well as their role in approving and/or utilizing the fruits of the misconduct. To assess the full extent of the violations, therefore, Microsoft and F&R should be ordered to produce all "documents, recordings, notes, and memoranda relating to or generated as a result of the ex parte contact," as well as submit to depositions of every individual and entity involved in the misconduct or with knowledge of the "fruit" of that misconduct. *See Kligman*, 737 F. Supp. at 330 (ordering exclusion and production of information obtained from *ex parte* contact); *Penda*, 2004 U.S. Dist. LEXIS 13577, at *20-21 (same); *Faison*, 863 F. Supp. at 1218 (disqualifying counsel and ordering that "plaintiffs and their counsel shall produce for examination and copying the originals of any documents provided by, shown to, or discussed with [represented party] during the course of [their] contacts with him, as well as all originals and copies of statements, notes, memoranda, tape recordings, correspondence, facsimile transmission cover sheets, and all other recordings and documents generated as a result of [their] contacts").

Moreover, because it would be "inequitable to permit the plaintiff to keep any advantage it may have gained from the ethical violation," Microsoft should be precluded from using any information gained from F&R's misconduct. *See Kligman*, 737 F. Supp. at 329. Once all evidence concerning this content is produced, Alcatel and this Court will be in a position to determine what further action may be needed to remedy the wrongdoing.

F. Microsoft and F&R Should Be Ordered to Pay Monetary Sanctions

"District judges have an arsenal of sanctions they can impose for unethical behavior," including, in addition to disqualification and exclusion of evidence, monetary sanctions and contempt. *Erickson v. Newmar Corp.*, 87 F.3d 298, 303 (9th Cir. 1996). When, as here, "considered as a whole, [an attorney's] transgressions evidence a pattern of obfuscation and mean spiritedness," courts in this circuit should issue monetary sanctions. *In re Prudential Ins. Co. Am. Sales Practice Litig. Actions*, 278 F.3d 175, 189 (3d Cir. 2002) (affirming monetary sanctions pursuant to the inherent power without an express finding of bad faith); *see also Kleiner v. First Nat'l Bank*, 751 F.2d 1193, 1210 (11th Cir. 1985) (disqualifying counsel and imposing fines up to the amount of "the damages which would be awarded in dismissal" for violations, *inter alia*, of Rules 4.2 and 8.4); *Hammond*, 167 F. Supp. 2d at 1289 (imposing disqualification and monetary sanctions for Rule 4.2 violation); *Parker v. Pepsi-Cola Gen. Bottlers, Inc.*, 249 F. Supp. 2d 1006, 1013 (D. Ill. 2003) (awarding attorneys' fees for improper ex parte contact).

Monetary sanctions are especially appropriate here, given the elaborate and persistent nature of the misconduct, the level of prejudice to Alcatel and the resources required by Alcatel to seek the relief requested in this motion. (*See* disc. *supra* at § III(C).) F&R's tactics not only violated pertinent rules of professional conduct—but were undertaken in an egregious fashion, as explained in Professor Morgan's declaration. (*See* Morgan Decl. at ¶ 6.) Furthermore, Alcatel

has been, and will continue to be, prejudiced absent such relief. Alcatel therefore respectfully requests that this Court order Microsoft and/or F&R to pay Alcatel the full amount of costs that would be awarded to it in a dismissal of this action, as well as its attorneys' fees in securing the relief required in this Motion.

V. CONCLUSION

For the foregoing reasons, Alcatel respectfully requests that this Court enter an order: disqualifying Fish & Richardson P.C. as counsel for Microsoft; excluding Microsoft's expert, Jack Chang, from any involvement in this or any related litigation; requiring Microsoft and F&R to produce documents and information related to the improper conduct, and ordering further discovery into the matter; barring Microsoft and its counsel from using any such documents and information; requiring Microsoft and/or F&R to pay monetary sanctions, including Alcatel's full litigation costs and its attorneys' fees in bringing this Motion; and ordering any other relief which the Court deems appropriate.

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August 31, 2007

1224722

CERTIFICATE OF SERVICE

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Thomas L. Halkowski, Esquire
FISH & RICHARDSON P.C.

I also certify that copies were caused to be served on September 10, 2007 upon the following in the manner indicated:

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EXHIBIT 1

US006430289B1

(12) **United States Patent**
Liffick

(10) **Patent No.: US 6,430,289 B1**
(45) **Date of Patent: Aug. 6, 2002**

(54) **SYSTEM AND METHOD FOR COMPUTERIZED STATUS MONITOR AND USE IN A TELEPHONE NETWORK**

(75) Inventor: **Stephen Mitchell Liffick**, Seattle, WA (US)

(73) Assignee: **Microsoft Corporation**, Redmond, WA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/291,693**

(22) Filed: **Apr. 13, 1999**

(51) **Int. Cl.**[7] **H04M 1/00**
(52) **U.S. Cl.** 379/900; 379/142.15; 370/352
(58) **Field of Search** 379/201.06, 209.07, 379/201.08, 201.1, 210.11, 142.15, 196, 197, 198, 199, 900; 370/352, 353, 354

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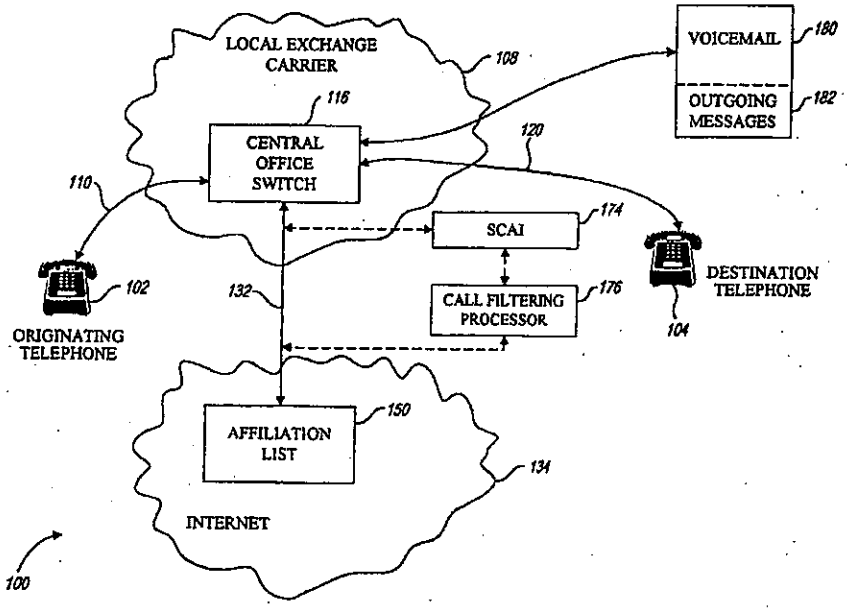
* cited by examiner

Primary Examiner—Craighton Smith
(74) *Attorney, Agent, or Firm*—Workman, Nydegger, Seeley

(57) **ABSTRACT**

A telecommunication system combines telephone technology and computer network technology to monitor a caller and callee's computer activity and to access call processing criteria selected by the caller and callee and stored on the computer network. A component of the telephone system, such as a central office switch, accesses the caller and callee call processing criteria. The system evaluates the call processing criteria and, when conditions for both caller and callee are met, the telephone system initiates a telephone call between the caller and callee. The call processing criteria may include accepting all calls, no calls, or calls only from specified parties. In addition, the call processing criteria can vary in accordance with the time of day or an individual's personal preferences, or status, such as when an individual is in a meeting. A user's computer activity may also be monitored and the computer status as idle or active may be reported to the computer network as part of the call processing criteria.

20 Claims, 10 Drawing Sheets



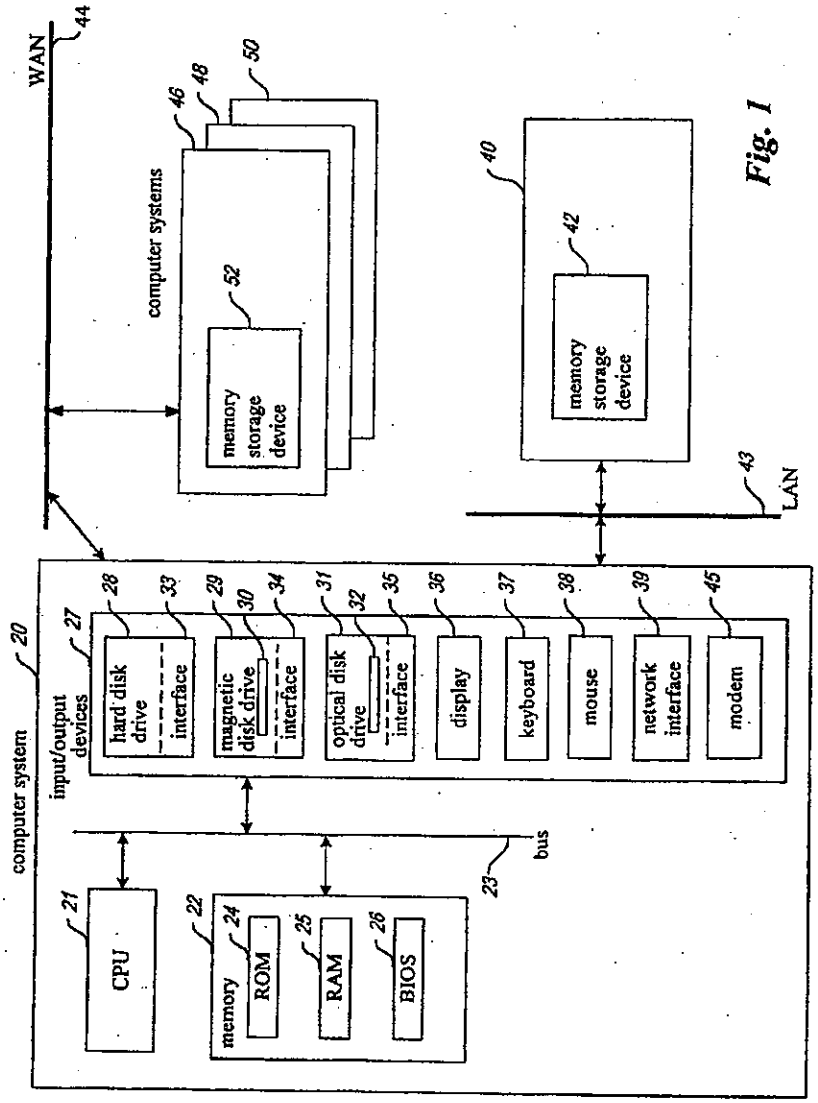

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Fig. 1

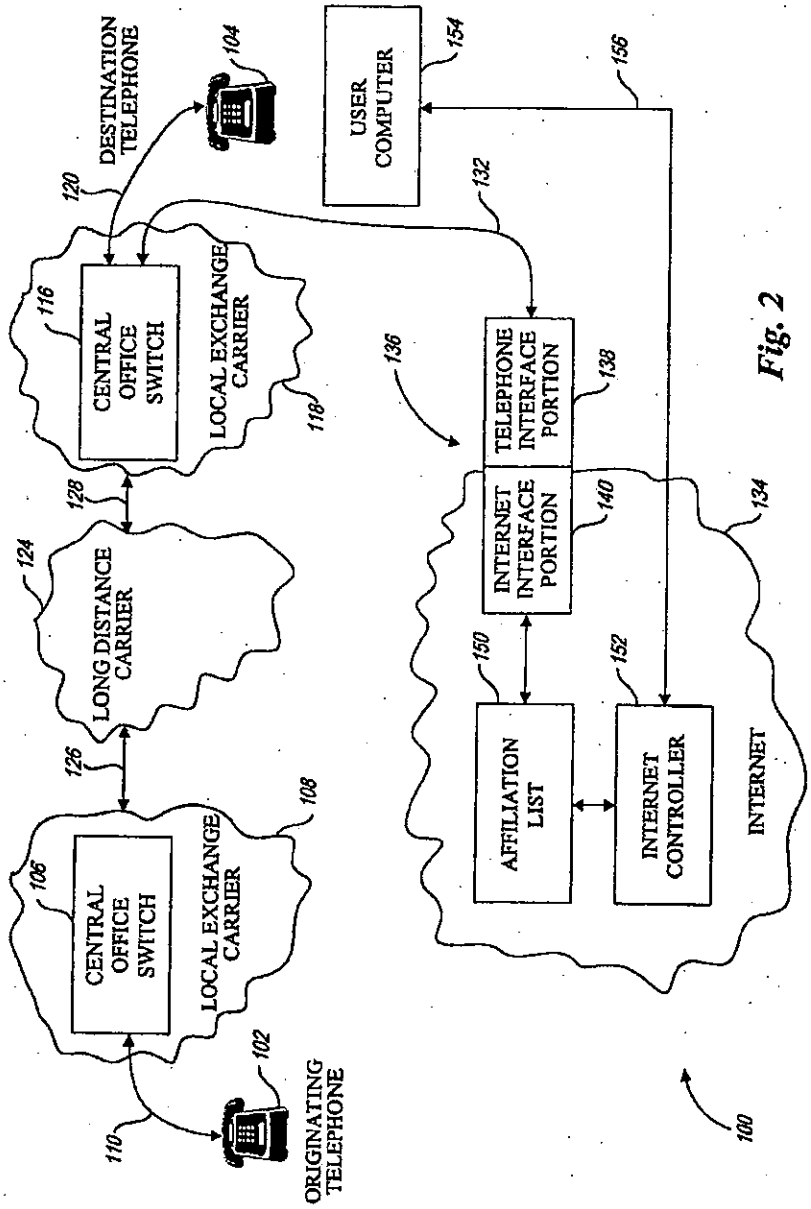
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Fig. 2

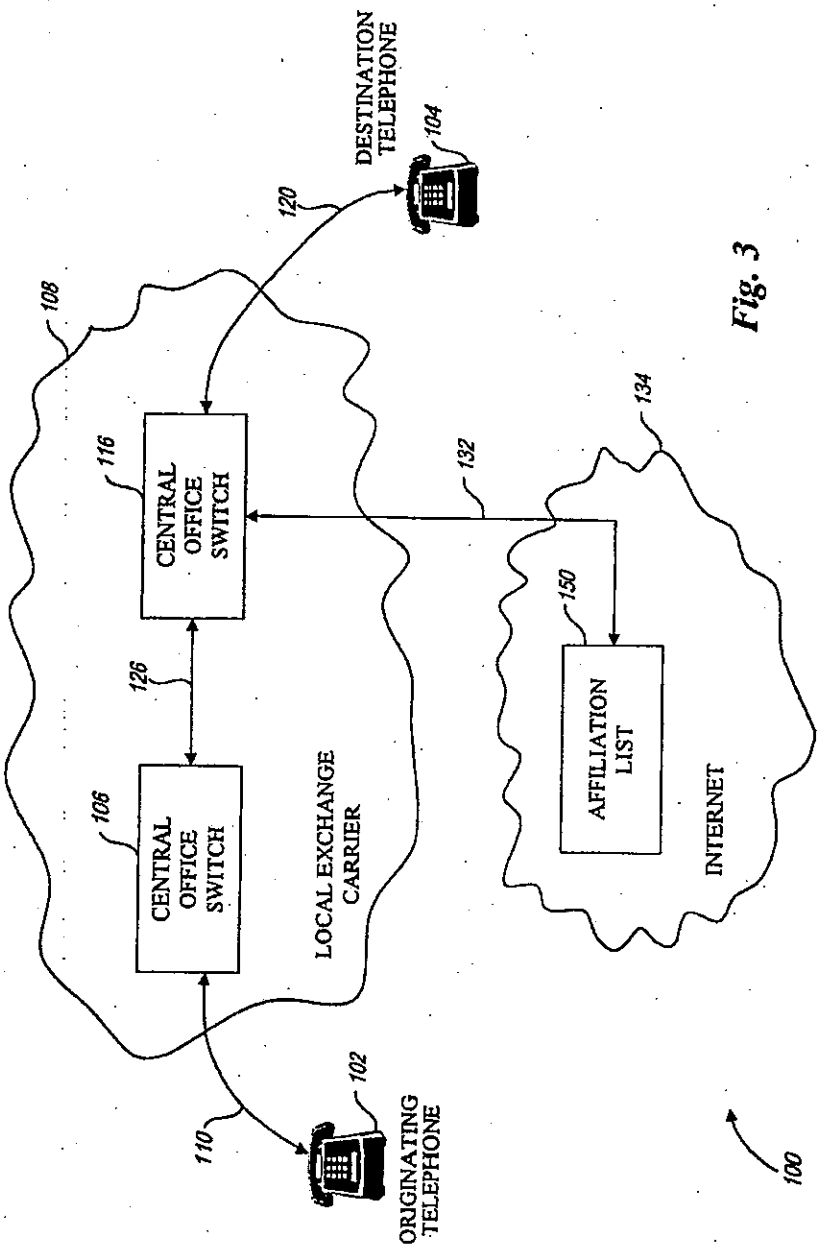
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Fig. 3

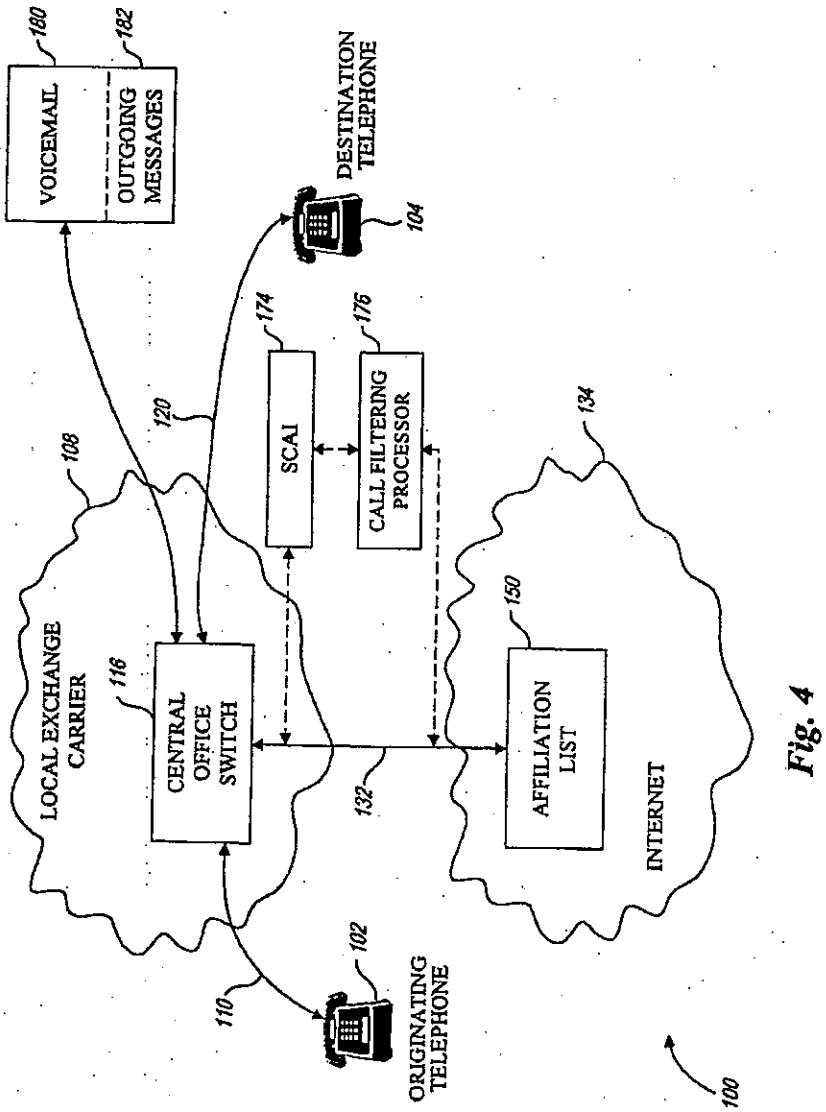
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Fig. 4

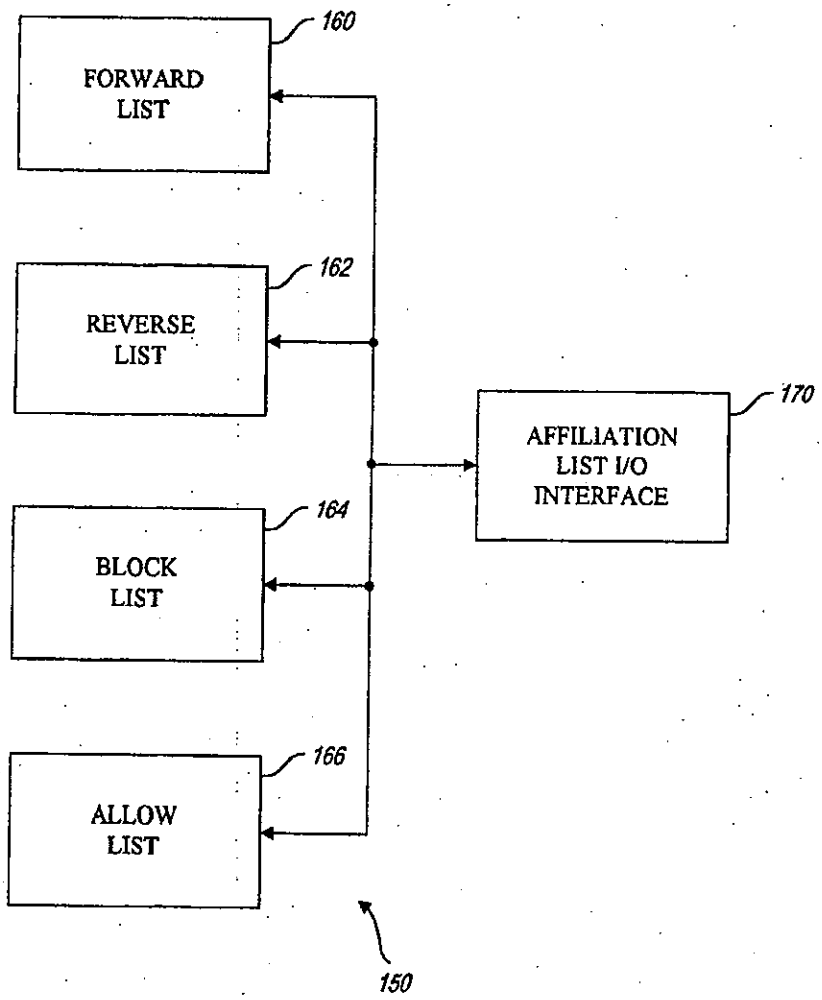
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Fig. 5

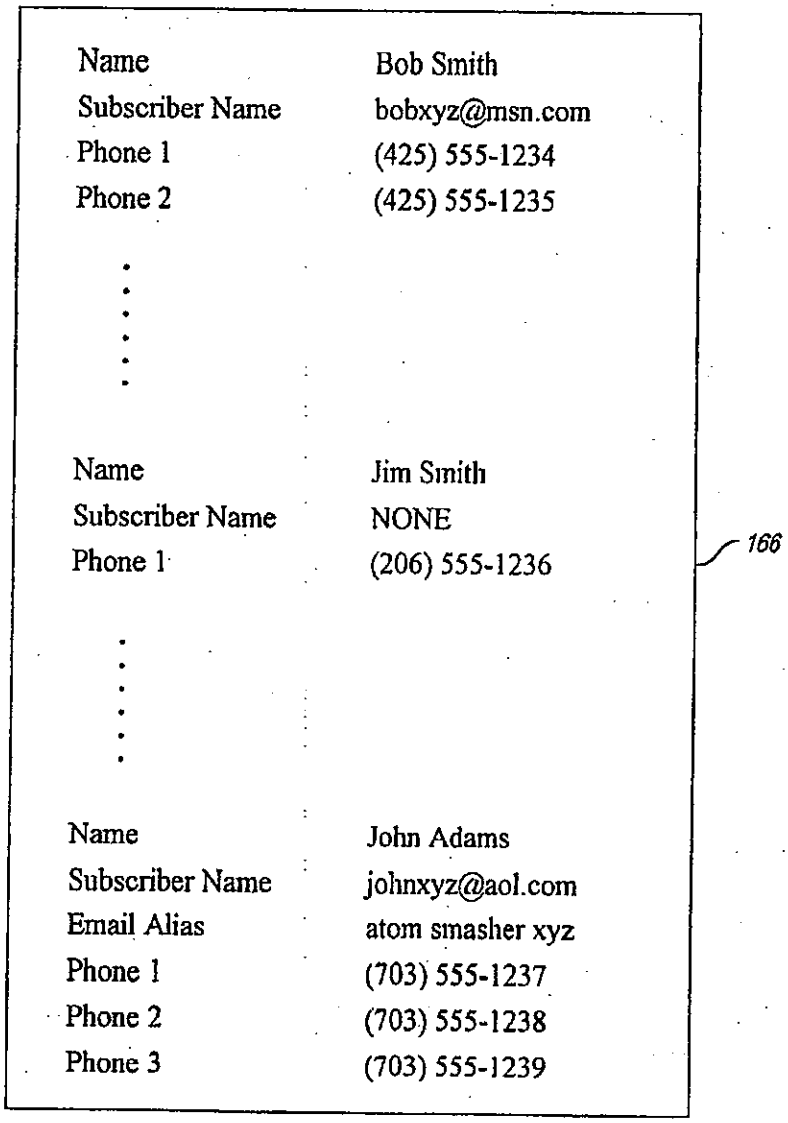
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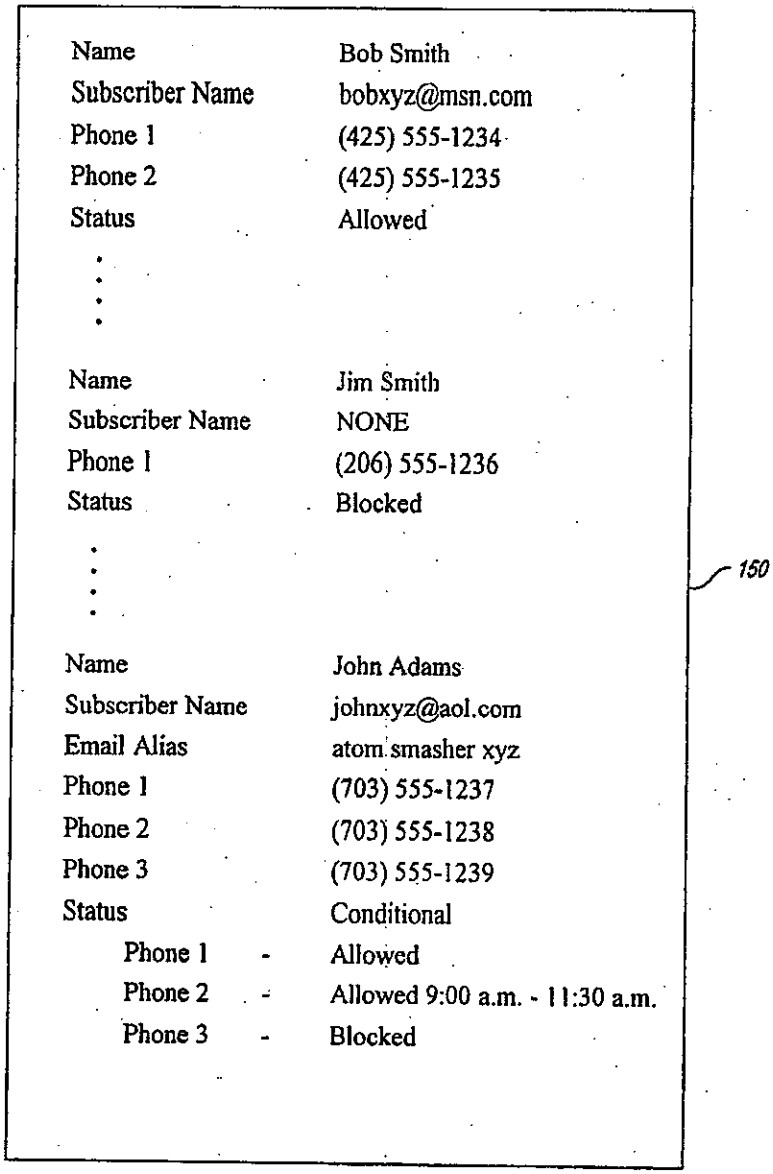
Fig. 6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Phone 2 (425) 555-1235
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Subscriber Name NONE
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Status Blocked
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Subscriber Name johnxyz@aol.com
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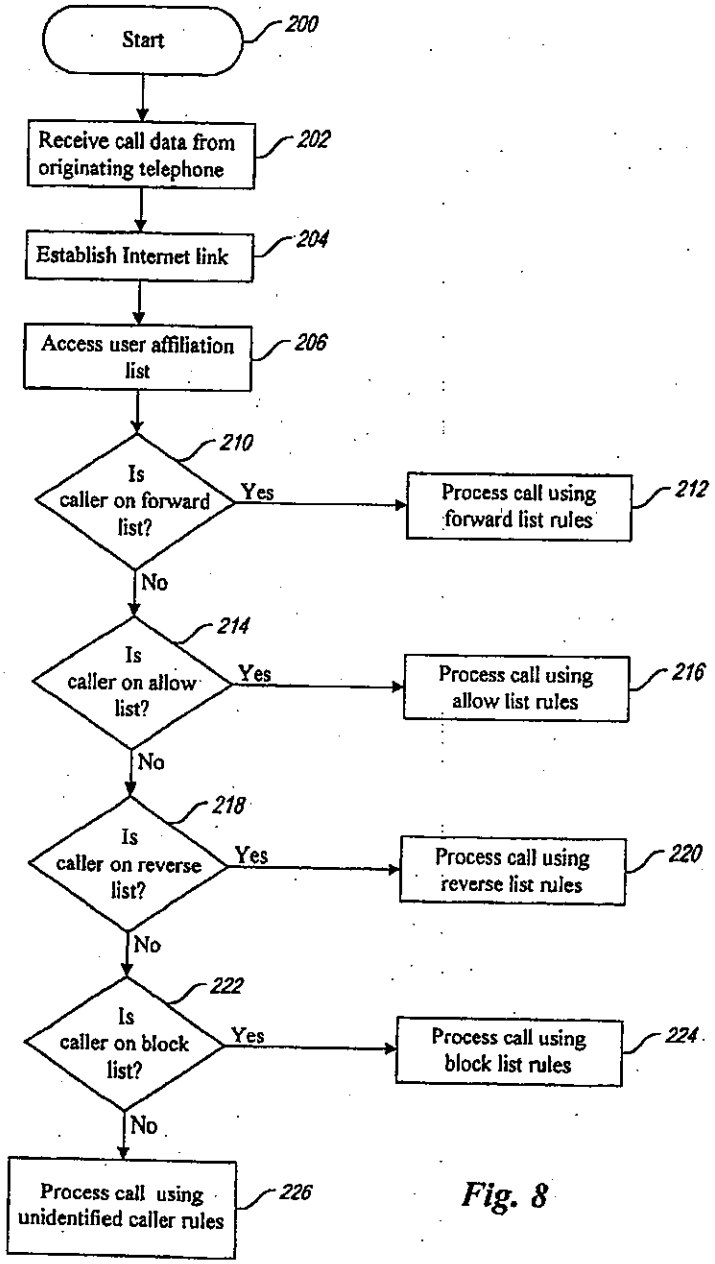
Fig. 7


Start
200
Receive call data from originating telephone
202
Establish Internet link
204
Access user affiliation list
206
Is caller on forward list?
210
Yes
Process call using forward list rules
212
No
Is caller on allow list?
214
Yes
Process call using allow list rules
216
No
Is caller on reverse list?
218
Yes
Process call using reverse list rules
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No
Is caller on block list?
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Yes
Process call using block list rules
224
No
Process call using unidentified caller rules
226

Fig. 8

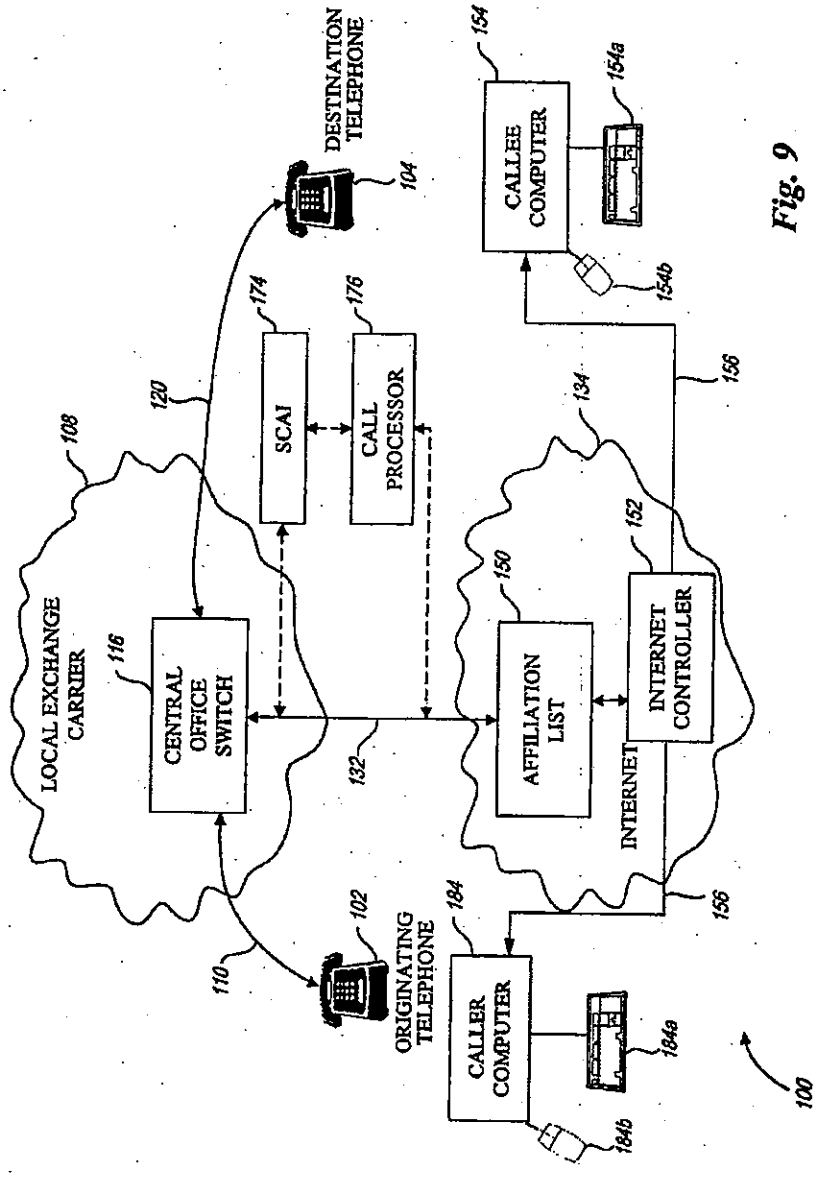
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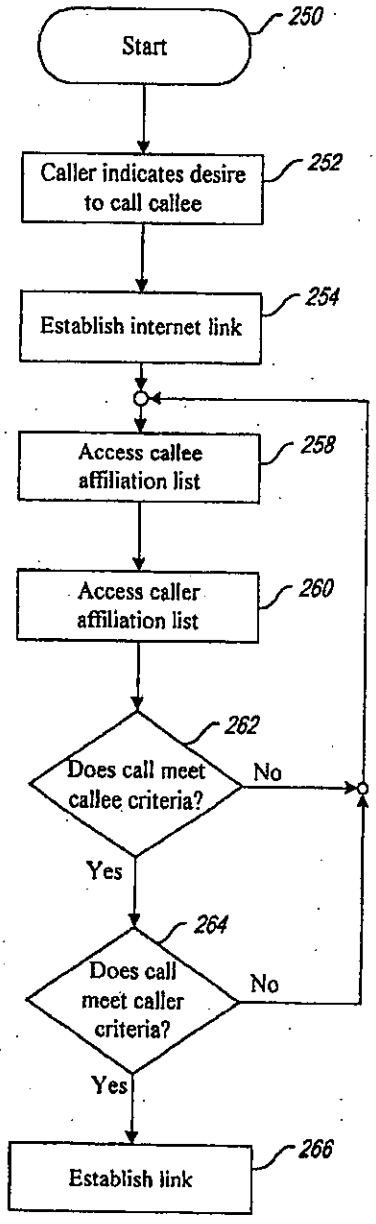
Fig. 9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Caller indicates desire to call callee
252
Establish internet link
254
Access callee affiliation list
258
Access caller affiliation list
260
Does call meet callee criteria?
262
No
Yes
Does call meet caller criteria?
264
No
Yes
Establish link
266

Fig. 10

SYSTEM AND METHOD FOR COMPUTERIZED STATUS MONITOR AND USE IN A TELEPHONE NETWORK

TECHNICAL FIELD

The present invention is directed generally to telecommunications and, more particularly, to a system and method for establishing a telephone communication link using status reporting information from an independent computer network.

BACKGROUND OF THE INVENTION

Telephone communication systems have increased in both size and complexity. Early telephone systems required a human operator to manually connect an originating telephone with a destination telephone. With the introduction of automatic switching technology, the need for human operators to connect each and every call disappeared. However, even automated switches did not provide the wide range of features available on most telephone systems, such as voicemail, caller identification, call waiting, call forwarding, three-way calling and the like. Most telephone systems today include these features and allow the customer to select one or more features to customize their telephone service. With features such as voicemail, the telephone switching system must recognize when the destination telephone is either busy or remains unanswered. If either of these conditions occur, the calling party is routed to the voicemail service associated with the destination telephone.

Despite these improvements, telephone systems are incapable of determining when a particular recipient (i.e., a callee) may be available to receive a call. The caller has no choice but to place a call to the destination telephone and hope that the callee answers. Alternatively, the caller may leave a voicemail indicating a specific time at which the caller will place yet another call. This is an undesirable activity since it requires multiple calls, thus utilizing telecommunication capabilities in an inefficient manner. In addition, repeated or failed attempts to actually reach the callee are a waste of human resources since the parties must often call back and forth to each other a number of times before actually reaching the desired party. Therefore, it can be appreciated that there is a significant need for a system and method that can establish a telephone communication link when both parties are available to communicate. The present invention provides this and other advantages as will be apparent from the following detailed description and accompanying figures.

SUMMARY OF THE INVENTION

A system to specify user-selectable criteria for call processing is implemented on a telephone system, such as a public switched telephone network (PSTN). The user-specified call processing criteria is stored on a network that is accessible by the user for data entry and/or editing, and is also accessible by the PSTN to determine whether call processing criteria exists for the particular caller. The Internet provides a readily available data structure for storage of the user-selectable call processing criteria. The user can establish a database stored on the Internet in association with the user's telephone number and indicating the user-selectable call processing criteria for one or more potential callers.

The caller may be identified by caller identification data, such as automatic number identification (ANI). Based on the destination telephone number and the caller identification data, the PSTN accesses the Internet and examines an affiliation list corresponding to the destination telephone number. If the caller identification data is present in the affiliation list, the call may be processed in accordance with the user-specified criteria for that particular caller.

Both the caller and callee can specify user-selectable call processing criteria. The potential callee can specify call processing criteria for all incoming calls, such as providing a list of individuals from whom the person will accept calls, a list of individuals from whom the person will not accept calls, or conditional criteria, such as accepting or blocking calls during certain times of day or during certain periods of activity, such as when the user may be otherwise occupied and unwilling to accept an incoming call. In addition, the potential callee's computer activity may be monitored and the status of the computer as idle or active may be reported to the computer network. The caller indicates a desire to establish a communication link with the callee. The computer network accesses the caller's call processing criteria and the callee's call processing criteria. The call processing criteria for both the caller and callee are analyzed and when all conditions are met, a telephone communication link is established between an originating telephone associated with the caller and a destination telephone associated with the callee.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a computer system that includes components to implement the system of the present invention.

FIG. 2 is a functional block diagram outlining the operation of the present invention.

FIG. 3 is a functional block diagram of an alternate telecommunications configuration implementing the present invention.

FIG. 4 is a functional block diagram of another alternative telecommunications configuration implementing the present invention.

FIG. 5 is a functional block diagram providing details of the affiliation list of the system of FIG. 2.

FIG. 6 illustrates sample data provided in the list of FIG. 5.

FIG. 7 illustrates additional sample data provided in the list of FIG. 3.

FIG. 8 is a flowchart illustrating the operation of the system of FIG. 2.

FIG. 9 is a functional block diagram illustrating the system of the present invention to process a call in accordance with both a caller and callee call processing criteria.

FIG. 10 is a flowchart illustrating the operation of the system of FIG. 9.

DETAILED DESCRIPTION OF THE INVENTION

Existing telephone technology does not provide the telephone subscriber with a technique for controlling access to the user's telephone. Features such as caller ID identify the caller, but do not control access to the user's telephone. Thus, the conventional telephone system forwards the user to extreme options. The user may answer all incoming calls or may choose not to answer any incoming calls. However, the present invention provides selective options in between these two extremes. The present invention combines telephone technology with Internet technology to allow the user

to "filter" incoming calls based on user-selected criteria. In particular, the user may establish a series of lists, stored on the Internet in association with the user's telephone, to filter incoming calls and thereby control access to the user's telephone. In addition, it is possible to monitor the activity or status of both a caller and a callee and establish a communication link between the caller's telephone and the callee's telephone when status data indicates that both are available for a telephone call.

FIG. 1 and the following discussion are intended to provide a brief, general description of a suitable computing environment in which the invention may be implemented. Although not required, the invention will be described in the general context of computer-executable instructions, such as program modules, being executed by a personal computer. Generally, program modules include routines, programs, objects, components, data structures, etc. that perform particular tasks or implement particular abstract data types. Moreover, those skilled in the art will appreciate that the invention may be practiced with other computer system configurations, including hand-held devices, multiprocessor systems, microprocessor-based or programmable consumer electronics, network PCs, minicomputers, mainframe computers, and the like. The invention may also be practiced in distributed computing environments where tasks are performed by remote processing devices that are linked through a communications network. In a distributed computing environment, program modules may be located in both local and remote memory storage devices.

With reference to FIG. 1, an exemplary system for implementing the invention includes a general purpose computing device in the form of a conventional personal computer 20, including a processing unit 21, a system memory 22, and a system bus 23 that couples various system components including the system memory to the processing unit 21. The system bus 23 may be any of several types of bus structures including a memory bus or memory controller, a peripheral bus, and a local bus using any of a variety of bus architectures. The system memory 22 includes read only memory (ROM) 24 and random access memory (RAM) 25. A basic input/output system 26 (BIOS), containing the basic routines that helps to transfer information between elements within the personal computer 20, such as during start-up, may be stored in ROM 24.

The personal computer 20 further includes input/output devices 27, such as a hard disk drive 28 for reading from and writing to a hard disk, not shown, a magnetic disk drive 29 for reading from or writing to a removable magnetic disk 30, and an optical disk drive 31 for reading from or writing to a removable optical disk 32 such as a CD ROM or other optical media. The hard disk drive 28, magnetic disk drive 29, and optical disk drive 31 are connected to the system bus 23 by a hard disk drive interface 33, a magnetic disk drive interface 34, and an optical drive interface 35, respectively. The drives and their associated computer-readable media provide nonvolatile storage of computer readable instructions, data structures, program modules and other data for the personal computer 20. Although the exemplary environment described herein employs a hard disk, a removable magnetic disk 30 and a removable optical disk 32, it should be appreciated by those skilled in the art that other types of computer readable media which can store data that is accessible by a computer, such as magnetic cassettes, flash memory cards, digital video disks, Bernoulli cartridges, random access memories (RAMs), read only memories (ROM), and the like, may also be used in the exemplary operating environment. Other I/O devices 27, such as a display 36, keyboard 37, mouse 38, and the like may be included in the personal computer 20 and function in a known manner. For the sake of brevity, other components, such as a joystick, sound board and speakers are not illustrated in FIG. 1.

The personal computer 20 may also include a network interface 39 to permit operation in a networked environment using logical connections to one or more remote computers, such as a remote computer 40. The remote computer 40 may be another personal computer, a server, a router, a network PC, a peer device or other common network node, and typically includes many or all of the elements described above relative to the personal computer 20, although only a memory storage device 42 has been illustrated in FIG. 1. The logical connections depicted in FIG. 1 include a local area network (LAN) 43 and a wide area network (WAN) 44. Such networking environments are commonplace in offices, enterprise-wide computer networks, intranets and the Internet.

When used in a LAN networking environment, the personal computer 20 is connected to the LAN 43 through the network interface 39. When used in a WAN networking environment, the personal computer 20 typically includes a modem 45 or other means for establishing communications over the wide area network 44, such as the Internet. The modem 45, which may be internal or external, permits communication with remote computers 46-50. In a networked environment, program modules depicted relative to the personal computer 20, or portions thereof, may be stored in the remote memory storage device 42 via the LAN 51 or stored in a remote memory storage device 52 via the WAN 44. It will be appreciated that the network connections shown are exemplary and other means of establishing a communications link between the computers may be used.

The present invention is embodied in a system 100 illustrated in the functional diagram of FIG. 2. In a typical telephone communication, an originating telephone 102 is operated by the caller to place a call to a destination telephone 104. The originating telephone generates signals that are detected by a central office switch 106 operated by a local exchange carrier (LEC) 108. The LEC 108 is the telephone service provider for the calling party. The originating telephone 102 is coupled to the central office switch 106 via a communication link 110. As those skilled in the art can appreciate, the communication link 110 may be a hard-wired connection, such as a fiber optic, copper wire, or the like.

Alternatively, the communication link 110 may be a wireless communication link if the originating phone 102 is a cellular telephone or some other form of wireless telephone.

Similarly, the destination telephone 104 is coupled to a central office switch 116 operated by a local exchange carrier (LEC) 118. The destination telephone 104 is coupled to the central office switch 116 via a communication link 120. The communication link 120 may be a hard-wired communication link or a wireless communication link, as described above with respect to the communication link 110. The present invention is not limited by the specific form of communication link or central office switch.

The LEC 108 establishes a communication link with the LEC 118. As illustrated in FIG. 2, the communication link between the LEC 108 and the LEC 118 is through a long distance carrier (LDC) 124. The LEC 108 establishes a communication link 126 with the LDC 124 which, in turn, establishes a communication link 128 with the LEC 118. If

the telephone call from the originating telephone **102** to the destination telephone **104** is not a long distance call, the LDC **124** is not required. In this case, the communication link **126** may couple the LEC **108** directly to the LEC **118**. The use of the system **100** with other telephone configurations are illustrated in other figures.

To place a telephone call, the caller activates the originating telephone **102** to dial in the telephone number corresponding to the destination telephone number **104**, thereby establishing the communication link **110** with the central office switch **106**. In turn, the central office switch **106** establishes the communication link **126** (via the LDC **124**, if necessary), thus establishing a communication link with the central office switch **116**. In a conventional telephone system, the central office switch **116** establishes the communication link **120** to the destination telephone **104** causing the destination telephone to ring. If the callee picks up the destination telephone, a complete communication link between the originating telephone **102** and the destination telephone **104** has been established. This is sometimes referred to as "terminating" the telephone call. The specific telecommunications protocol used to establish a telephone communication link between the originating telephone **102** and the destination telephone **104** is well known in the art and need not be described herein. The preceding description of techniques used to establish the telephone communication link are provided only as a basis for describing the additional activities performed by the system **100**.

With the system **100**, the central office switch **116** does not initially establish the telephone communication link **120** with the destination telephone **104** to cause the telephone to ring. Instead, the central office switch **116** establishes a communication link **132** with a computer network **134**, such as the Internet. As those skilled in the art can appreciate, the Internet is a vast multi-computer network coupled together by data links having various communication speeds. Although the Internet **134** may use a variety of different communication protocols, a well-known communication protocol used by the Internet is a Transmission Control Protocol/Internet Protocol (TCP/IP). The transmission of data on the Internet **134** using the TCP/IP is known to those skilled in the art and need not be described in greater detail herein.

The central office switch **116** utilizes conventional telephone communication protocols, which may be different from the TCP/IP communication protocols used by the Internet **134**. The system **100** includes a communication interface **136** to translate data between the two communication protocols. The communication interface **136** includes a telephone interface portion **138** and an Internet interface portion **140**. The telephone interface portion **138** is coupled to the central office switch **116** via the communication link **132** such that communications occurring on the communication link **132** utilize the telephone communication protocol. The Internet interface portion **140** communicates via the Internet using conventional communication protocols, such as TCP/IP.

The communication interface **136** may be implemented on a computing platform that functions as a server. The conventional components of the computing platform, such as a CPU, memory, and the like are known to those skilled in the art and need not be described in greater detail herein. The telephone interface portion **138** may comprise an Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) to communicate with the central office switch **116**. The ISDN PRI, which may be implemented on a plug-in computer card, provides information to the telephone interface portion **138**, such as automatic number identification (ANI), dialed number identification service (DNIS), and the like. As is known, ANI provides the telephone number of the caller's telephone (e.g., the originating telephone **102**) while the DNIS allows the number the caller dialed (e.g., the destination telephone **104**) to be forwarded to a computer system. These data may be considered "keys" which may be used by the system **100** to identify the caller and the callee. Thus, the central office switch **116** provides information which may be used to access the affiliation list **150** for the destination telephone **104**.

The Internet interface portion **140** may be conveniently implemented with a computer network card mounted in the same computing platform that includes the ISDN PRI card. However, it is not necessary for satisfactory operation of the system **100** that the interface cards be co-located in the same computing platform. It is only required that the telephone interface portion **138** communicate with the Internet interface portion **140**. The Internet interface portion **140** receives the incoming data (e.g., the ANI, DNIS, and the like) and generates Internet compatible commands. The specific form of the Internet commands using, by way of example, TCP/IP, are within the scope of knowledge of one skilled in the art and need not be described herein. As will be described below, data provided by the central office switch **116** will be used to access data on the Internet and use that data to determine the manner in which a telephone call will be processed.

The Internet **134** stores an affiliation list **150**, which may be established by the user of the destination telephone **104**. Data stored within the affiliation list **150** is accessed by the central office switch **116** to determine the manner in which the call from the originating telephone **102** will be processed. Details of the affiliation list **150** are provided below. The Internet **134** also includes an Internet controller **152** which communicates with a callee computer **154** via a network link **156**. The communication between the callee computer **154** and the Internet **134** is a conventional communication link used by millions of computers throughout the world. For example, the callee computer **154** may be a personal computer (PC) containing a communication interface, such as a modem (not shown). The network link **156** may be a simple telephone communication link using the modem to communicate with the Internet **134**. The Internet controller **152** functions in a conventional manner to communicate with the callee computer **154** via the network link **156**. Although the communication link **132** and the network link **156** are both communication links to the Internet, the network link **156** is a conventional computer connection established over a telephone line, a network connection, such as an Ethernet link, or the like. This conventional network link **156** is significantly different from the communication link **132** between the central office switch **116** and the Internet **134**. The central office switch **116** establishes the communication link **132** to access data on the Internet and uses that accessed data to determine how to process an incoming call for the destination telephone **104**. The network link **156** is a computer-to-computer connection that may simply use a telephone as the physical layer to establish the network link.

In the system **100**, the central office switch **116** receives an incoming call from the originating telephone **102** via the central office switch **106** and, optionally, the LDC **124**. Rather than immediately establishing the communication link **120** and generating a ring signal at the destination telephone **104**, the central office switch **116** establishes the

communication link 132 and communicates with the Internet 134 via the communication interface 136. The purpose of such communication is to access the affiliation list 150 and thereby determine the manner in which the user of the destination telephone 104 wishes calls to be processed.

FIG. 3 illustrates the system 100 for a telephone system configuration in which the originating telephone 102 and the destination telephone 104 are both serviced by the same local exchange carrier 108. The originating telephone 102 establishes the communication link 110 with the central office switch 106 in the manner described above. The central office switch 106 establishes the communication link 126 directly with the central office switch 116 without the need for the LDC 124 (see FIG. 2). The central office switch 116 operates in the manner described above. That is, the central office switch 116 does not immediately establish the communication link 120, but does establish the communication link 132 with the Internet 134. For the sake of simplicity, FIG. 3 does not illustrate the communication interface 136. However, those skilled in the art will appreciate that the central office switch 116 accesses the affiliation list 150 via the communication interface 136 (see FIG. 2).

For the sake of simplicity, FIG. 3 also does not show the Internet controller 152 and the callee computer 154. However, those skilled in the art can appreciate that those portions of the system may also be present in the embodiment illustrated in FIG. 3. However, it should be noted that the callee computer 154 and the Internet controller 152 need only be used to edit the affiliation list 150. The call processing by the central office switch 116 does not depend on the presence of the Internet controller 152 or the callee computer 154. That is, the central office switch 116 accesses the affiliation list 150 via the communication interface 136 regardless of the presence of the callee computer 154.

In yet another telephone system configuration, illustrated in FIG. 4, the originating telephone 102 and the destination telephone 104 are not only serviced by the same local exchange carrier 108, but are connected to the same central office switch 116. However, the fundamental operation of the system 100 remains identical to that described above with respect to accessing the affiliation list 150. That is, the originating telephone 102 establishes the communication link 110 with the central office switch 116. However, the central office switch 106 need not establish the communication link 126 with any other central office switch since the destination telephone 104 is also connected to that same central office switch.

In this telephone system configuration, the central office switch 116 accesses the affiliation list 150 on the Internet 134 via the communication link 132 (see FIG. 2) in the manner described above. For the sake of simplicity, FIG. 4 does not illustrate the communication interface 136. However, those skilled in the art will recognize that the communication interface 136 operates to convert communication signals between telephone protocol used by the central office switch 106 and the Internet communication protocol used by the Internet 134. In addition, FIG. 4 also does not illustrate the Internet controller 152 and the callee computer 154. As noted above with respect to FIG. 3, the Internet controller 152 and callee computer 154 are not necessary for proper operation of the system 100. The callee computer 154 is typically used in the system 100 to edit the affiliation list 150.

The affiliation list 150 is illustrated in greater detail in the functional block diagram of FIG. 5. The affiliation list comprises a series of sublists, illustrated in FIG. 3 as a forward list 160, a reverse list 162, a block list 164, and an allow list 166. The forward list 160 contains a list of Internet subscribers whose Internet activity a user wishes to monitor. This list is sometimes referred to as a "buddy" list. When the user operates the callee computer 154 on the Internet 134, the Internet controller 152 accesses the forward list 160 via an affiliation list input/output (I/O) interface 170 to determine which Internet subscribers contained within the forward list are currently active on the Internet 134. In conventional Internet operation, the Internet controller 152 sends a message to the callee computer 154 indicating which Internet subscribers on the forward list 160 are currently active on the Internet 134.

The forward list 160 is a list of Internet subscribers whose activity is reported to the user. Other Internet subscribers may have their own forward list (not shown) and may monitor the Internet activity of the user. When the user accesses the Internet 134 with the callee computer 154, that activity can be monitored by others. With the system 100, it is possible to determine who is monitoring the user's Internet activity. The reverse list 162 contains a list of Internet subscribers who have placed the user in their forward list. That is, the reverse list 162 contains a list of Internet subscribers who have placed the user in their buddy list. With the reverse list 162, the user can determine who is monitoring his Internet activity.

The block list 164 contains a list of Internet subscribers that the user does not want to monitor his Internet activity. That is, the user's Internet activity will not be provided to any Internet subscriber contained in the block list 164. Thus, even if a particular Internet subscriber has placed the user on their forward list, the presence of that particular Internet subscriber's name on the block list 164 will prevent the user's Internet activity from being reported to the particular Internet subscriber. The use of the block list 164 provides certain security assurances to the user that their Internet activity is not being monitored by any undesirable Internet subscribers.

The allow list 166 contains a list of Internet subscribers for whom the user may wish to communicate with but whose Internet activity the user does not wish to monitor.

The system 100 combines the capabilities of the affiliation list 150 with telephone switching technology to filter incoming calls to the destination telephone 104. For example, the user may specify that only calls from Internet subscribers contained in the forward list 154 may contact the user via the destination telephone 104. Alternatively, the user may specify that a calling party whose name is contained in the forward list 160 or the allow list 166 may place a call to the destination telephone 104. As will be discussed in greater detail below, the system 100 allows the user to create general conditional processing, such as blocking calls or allowing calls. However, the user can also create specific conditional processing for individual callers or based on the user's current status or preferences.

The central office switch 116 accesses the affiliation list 150 via the communication link 132 and determines whether the calling party is in a list (e.g., the forward list 160) that the user wishes to communicate with. If the calling party is contained within an "approved" list, the central office switch 116 establishes the communication link 120 and sends a ring signal to the destination telephone 104. Thus, the user can pick up the telephone with the knowledge that the calling party is an individual with whom the user wishes to communicate.

Conversely, if the calling party is not contained within an approved list, such as the forward list 160 or the allow list

166, the central office switch 116 will not establish the communication link 120 with the destination telephone 104. Thus, the user will not be bothered by undesirable phone calls. In one embodiment, the central switch office simply will not establish the communication link 120 and the calling party will recognize that the call did not go through. Alternatively, the central office switch 116 may generate a signal indicating that the destination telephone 104 is busy. In this alternative embodiment, the calling party will receive a busy signal on the originating telephone 102. Thus, the user has the ability to filter incoming calls by creating a list of those individuals with whom the user wishes to communicate.

It should be noted that the affiliation list 150 may be dynamically altered by the user to add or delete individuals, change individuals from one list to another, or to change the call processing options for a particular list depending on the user's preferences. For example, the user may want to accept all calls from any source at certain times of the day. Under these circumstances, the user can edit the allow list 166 to accept calls from any calling party. Alternatively, the user may still maintain the block list 164 such that calls will not be processed from certain specified parties even if the user is willing to accept calls from any other source. Under other circumstances, the user may not wish to communicate with any individuals. In this instance, the user may indicate that all calling parties are on the block list 164. Thus, the central office switch 116 will access the Internet 134 in real-time and review data in the affiliation list 150 to thereby process incoming calls for the user in accordance with the rules present in the affiliation list.

The discussion above provides examples of the central office switch 116 processing calls from a calling party in accordance with their presence or absence of certain lists in the affiliation list 150. For example, a call from a party on the forward list 160 will be connected to the destination telephone 104 (see FIG. 2) while a call from a party on the block list 164 will not be put through to the destination telephone. However, the system 100 also allows the selection of call processing options on an individual basis rather than simply on the presence or absence in a particular list. For example, the user can edit the allow list 166 to specify that certain individuals are "allowed" while other individuals may be allowed, conditionally allowed, or blocked all together. If the individual calling party has an associated status indicating that they are allowed, the central office switch 116 will process the incoming call and connect it to the destination telephone 104. If the individual calling party has an associated blocked status, the central office switch 116 will not process the call and will not connect it to the destination telephone 104.

Furthermore, the user may attach conditional status to individual callers or to calling lists. Conditional status may be based on factors, such as the time of day, current availability of the user, work status, or the like. For example, the user may accept calls from certain work parties during specified periods of the day (e.g., 9:00 a.m.–11:00 a.m.), block calls from selected calling parties during other periods of time (e.g., 12:00–1:00 p.m.), or allow calls during a business meeting only from certain calling parties (e.g., the boss). These conditional status criteria may be applied to individuals or to one or more lists in the affiliation list 150.

FIG. 6 illustrates sample data entries in the allow list 166. The allow list 166 may include data, such as a name, Internet subscriber name, and one or more phone numbers associated with the individual data entry. It should be noted that the calling party need not have an Internet subscriber name for proper operation of the system 100. That is, the central office switch 116 accesses the allow list 166 utilizing the calling party number and need not rely on any email addresses or other Internet subscriber identification for proper operation. The allow list 166 may also include an email alias in addition to or in place of the Internet subscriber name. Some Internet subscribers prefer to "chat" with other subscribers utilizing an alias rather than their actual Internet subscriber name. The data of FIG. 6 illustrates one possible embodiment for the allow list 166. However, those skilled in the art can appreciate that the allow list 166 may typically be a part of a large database (not shown). Database operation is well known in the art, and need not be described in greater detail herein. The database or other form of the forward list 160 may be satisfactorily implemented using any known data structure for storage of data. For example, the various lists (e.g., the allow list 166, the reverse list 162, the block list 164 and the allow list 166) may all be integrated within a single database structure. The present invention is not limited by the specific structure of the affiliation list 150 nor by the form or format of data contained therein.

Rather than incoming call filtering on the basis of presence in a particular list, such as the allow list 166, as illustrated in FIG. 6, the affiliation list 150 may contain status data on an individual basis. In this event, the central office switch 116 (see FIG. 2) processes the incoming call in accordance with the designated status for that individual. In the example illustrated in FIG. 7, the affiliation list 150 contains one individual with an "allowed" status, one individual with a "blocked" status, and one individual with a "conditional" status based on user-selected criteria. In the example of FIG. 7, the user-selected criteria may be based on the particular phone from which the call is originating as well as the time of day in which the call is originated. For example, the user may wish to allow all calls from a particular number, such as an caller's work number. However, calls from another number, such as the caller's home phone, may be blocked. Other calls, such as from a caller's cellular telephone, may be allowed only at certain times of day. FIG. 7 is intended to illustrate some of the call processing options that are available to the user. As can be appreciated, a variety of different conditional status criteria may be applied to one or more potential calling parties. However, a common feature of the system 100 is that the telecommunication system. (e.g., the central office switch 116) determines calling pat status on the basis of information stored on the Internet and processes the incoming call in accordance with the user-specified criteria. Moreover, the system 100 operates in real-time to process the incoming call in accordance with the user-specified criteria.

The Internet 134 may be conveniently used as a storage area for the caller specified criteria. The advantage of such data storage on the Internet is that the data is widely accessible to the user. This provides a convenient mechanism for entering new caller data or editing existing caller data. The user can access the affiliation list 150 with the callee computer 154 via the network link 156. In contrast, the central office switch 116 may access the affiliation list 150 via the communication link 132, which may typically be a high-speed communication link. In addition, FIGS. 2, 4, and 5 illustrate the central office switch 116 as the telecommunication component that accesses the Internet 134. It is convenient for operational efficiency to have the central office switch (e.g., the central office switch 116) to which the destination telephone 104 is connected perform such Internet access. It is at this stage of the telephone call processing that the telecommunication system may most conveniently

determine the user-specified caller status. However, those skilled in the art will recognize that the status check may be performed by other portions of the telecommunication system, such as the central office switch **106**, the LDC **124**, or the like. Thus, the present invention is not limited by the particular telecommunication component that establishes the communication link with a network which the user-specified caller status data is stored.

In addition, the system **100** can be readily implemented as an "add-on" component of the telecommunication system and need not be integrated with the central office switch **116**. For example, the conventional central office switch provides the ability to divert calls based on certain call conditions, such as "Call Forward No Answer," which may be used to divert an incoming call to voicemail or "Call Forward Busy," which may also divert the incoming call to voicemail. To implement the system **100** with an add-on processor, the system may optionally include a Switch to Computer Applications Interface (SCAI) **174** and a call processor **176**. The dashed lines of FIG. **4** are intended to illustrate an alternative configuration of the system **100**. This alternative configuration can also be implemented with other telephone system configurations, such as illustrated in FIGS. **2** and **3**. The SCAI **174** is a telecommunication protocol that allows switches to communicate with external computers. Data, such as caller and callee telephone numbers, and status information, such as Call Forward Busy, are provided to the SCAM **174** by the central office switch **116**.

The call processor **176** performs the functions described above to process the call in accordance with the user-specified criteria. That is, the call processor **176** receives caller and callee data from the SCAI **174** and accesses the affiliation list **150** via the communication interface **136** (see FIG. **2**). The call processor **176** uses user-specified call processing criteria to generate instructions for the central office switch **116**. The instructions are provided to the central office switch **116** via the SCAI **174**. Those skilled in the art will appreciate that the SCAI **174** is but one example of the Open Application Interface (OAI) that can be used with the central office switch **116**.

As noted above, the system **100** can process a call intended for the destination telephone **104**, block a call, or generate a busy signal at the originating telephone **102**. However, the system **100** also operates with voicemail and permits a number of different customized outgoing messages. FIG. **4** illustrates a voicemail system **180** having a storage area containing one or more outgoing messages **182**. For example, the voicemail system **180** can play an outgoing message **182** informing the caller that "the party you are calling only accepts calls from designated callers. Please leave a message." If calls are blocked only at certain times, the outgoing message **182** can say "the party you are calling does not accept calls between 11:30 a.m. and 1:00 p.m. Please leave a message or call back after 1:00 p.m." The outgoing message can also reflect callee availability by playing a message such as "The party you are calling is in a meeting. Please leave a message or call back in X minutes" where X reflects the amount of time before the meeting is expected to end. That information can be manually provided to the affiliation list **150** by the user or automatically derived from a computerized scheduling program on, by way of example, the callee computer **154** (see FIG. **2**).

Computerized scheduling programs, such as Microsoft® D Schedule Plus, can be used on the callee computer **154** (see FIG. **2**). It is known that such scheduling programs can be accessed via a computer network or downloaded to a hand-held computing device to track appointments. The system **100** can access such computerized scheduling programs and download appointments and scheduled meetings into the affiliation list **150**. The outgoing messages **182** can be automatically selected on the basis of the user's computerized schedule. Thus, the system **100** permits the user to schedule his day (e.g., meetings, lunch time, in office/available for calls, in office/unavailable for calls, etc.) on a computerized scheduling program and to process calls in accordance with the computerized schedule and even select outgoing messages automatically based on the user's schedule.

The operation of the system **100** is illustrated in the flowchart of FIG. **7**. At a start **200**, the calling party has placed a call from the originating telephone **102** (see FIG. **2**) to the destination telephone **104**. In step **202**, the central office switch **116** has received call data from the originating telephone **102**. The received call data includes the destination telephone number of the destination telephone **104** and identification data indicating the originating telephone **102** as the source of the present call. Use of automatic number identification (ANI) is a well-known technique for providing identification data indicating the originating telephone **102** as the source of the present call. While the specific implementation of ANI data, sometimes referred to as caller ID, may not be uniformly implemented throughout the United States, the ANI data is typically delivered between the first and second rings. In the present invention, the central office switch **116** (see FIG. **2**) does not initiate a ring signal to the destination telephone **104** until after determining the status of the calling party based on the ANI. In future implementations, telecommunication companies may transmit other forms of caller identification, such as caller name, Internet address, email alias, or the like. The system **100** operates satisfactorily with any form of caller identification. The only requirement for the system **100** is that some form of caller identification be provided. The call is processed in accordance with the user-specified criteria in the affiliation list **150** for the identified caller.

In step **204**, the central office switch **116** (see FIG. **2**) establishes the communication link **132** with the Internet **134**. Although step **204** illustrates the system **100** as actively establishing the communication link **132** with the Internet **134**, those skilled in the art will recognize that the system **100** can utilize a continuous high-speed data link between the central office switch and the Internet. Thus, it is not necessary to establish a network link for each and every incoming call processed by the central office switch **116**. As previously described, the communication interface **136** translates data between the telephone protocol and the Internet protocol. In step **206**, the system **100** accesses the affiliation list **150** for the user (i.e., the called party). In an exemplary embodiment, the telephone number of the destination telephone **104** or other callee identification is used as an index or pointer to a specific location within the database where the affiliation list **150** for the particular user may be found. Database operation in general, and techniques for locating specific items within a database in particular are known to those skilled in the art and need not be described herein.

In decision **210**, the system **100** determines whether the caller identification data is on the forward list **160** (see FIG. **3**). If the caller identification data is present in the forward list, the result of the decision **210** is YES. In that event, the system **100** proceeds to FIG. **6B** where the call is processed in accordance with the rules associated with the forward list **160**.

If the caller identification data is not present in the forward list **160** (see FIG. **3**), the result of decision **210** is

NO. In that event, the system **100** moves to decision **212** to determine whether the caller identification data is in the allow list **166**. If the caller identification data is present in the allow list **166**, the result of decision **214** is YES. In that event, the system **100** proceeds to decision **216** where the call is processed in accordance with the rules associated with the allow list **166**. If the caller identification data is not present in the allow list **166**, the result of decision **216** is NO.

In decision **218**, the system **100** determines whether the caller identification data is present in the reverse list **162**. If the caller identification data is present in the reverse list **162**, the system **100** proceeds to the step **220** where the call is processed in accordance with the rules associated with the reverse list **162**. If the caller identification data is not present in the reverse list, the result of decision **218** is NO. In that event, the system moves to decision **216** to determine whether the caller is present on the block list **164**. If the caller is present on the block list **164**, the result of decision **222** is YES. In that event, the system proceeds to step **224** where the call is processed in accordance with the rules associated with the block list. If the caller identification data is not present in the block list **164**, the result of decision **222** is NO. This indicates that the caller identification data is not present in any of the user-specified lists in the affiliation list **150**. In that event, the system moves to step **226** where the call may be processed in accordance with user-specified rules of processing anonymous or unidentified calls. The flowchart of FIG. **8** illustrates the operation of the system **100** with multiple lists wherein the call processing rules are designated for each list. In this embodiment, the call is processed on the basis of the presence or absence of the caller identification data in a particular list. However, as previously discussed, the affiliation list **150** (see FIG. 5B) may include user-specified status criteria for individual callers. In this embodiment, the system **100** processes the call on the basis of the user-specified status criteria associated with the individual caller rather than on the basis of the caller's presence or absence in a specific list. In that event, the system **100** may simply access the user affiliation list (see step **206** in FIG. **7**) and process the call in accordance with the user-specified status criteria for the individual caller. If the caller identification data is not present in the affiliation list **160**, the call may be processed using user-specified call processing criteria for unidentified callers, as shown in step **226**.

Thus, the system **100** allows the user to specify call processing rules for a plurality of different caller lists or for individual callers within a list. The caller lists may be readily edited in accordance with the changing desires of the user. The user may alter the call processing rules in accordance with various times of day, work conditions, or even the personal mood of the user. For example, the user may process all calls during certain times of the day, such as when the user is at work. However, when the user arrives home, subsequent calls may be processed in accordance with a different set of rules, such as accepting no calls during dinner time or after a certain time at night.

These rules may be applied differentially to different ones of the list in the affiliation list **150**. For example, the user may accept calls from any calling party on the forward list **160** (see FIG. **3**) or the allow list **166** during the evening hours. However, after a certain time at night, the caller may accept calls only from calling parties on the forward list **160**. Thus, the system **100** allows great flexibility in the user selection of calling rules and lists. The system **100** allows the user to filter incoming calls in accordance with generalized rules or in accordance with highly specific rules.

In addition to filtering incoming calls to the destination telephone **104**, the system **100** can monitor the status or activity of both the caller and the callee and establish a communication link between the originating telephone **102** and the destination telephone **104** when the status data indicates that both the caller and callee are available for a telephone conversation. The system **100** has been previously described with respect to callee status monitoring and processing of incoming calls in accordance with the user-selected (i.e., the callee-selected) call processing criteria. Similar status monitoring can be performed for the caller. As illustrated in FIG. **9**, the system **100** may include a caller computer **184**, which is coupled to the Internet via the communication link **132**. For the sake of clarity, FIG. **9** illustrates the callee computer **154** and the caller computer **184** as connected to the Internet **134** through a single Internet controller **152**. However, those skilled in the art will appreciate that the Internet **134**, or any computer network, includes many network controllers that function as a gateway to the network. Thus, the system **100** typically includes a large number of Internet controllers **152**.

In addition, for the sake of clarity, Figure illustrates only a single affiliation list **150**. However, those skilled in the art will appreciate that separate affiliation lists exist for the originating telephone **102** and the destination telephone **104**. The central office switch **116** (or the call processor **176**) access the appropriate affiliation list via the network connection **132** and apply the appropriate call processing rules for each telephone.

FIG. **9** also illustrates a keyboard **154***a* and mouse **154***b* coupled to the callee computer **154** for use in a conventional fashion. Similarly, the caller computer **184** includes a keyboard **184***a* and a mouse **184***b*. The computer operating system, such as the Windows® operating system, is capable of monitoring user activity on the computer. For example, the operating system on the callee computer **154** can detect user activity on the keyboard **154***a* or the mouse **154***b*. By monitoring this activity, the operating system can determine the user's status and activate certain software programs, such as a screen saver, when no user activity has been detected for a certain period of time. Under these circumstances, the operating system may determine that the callee computer **154** has entered an "idle" state. Similarly, operating system on the caller computer **184** may perform similar functions to determine user activity on the caller computer. Using the principles of the present invention, the callee computer **154** and the caller computer **184** may report the current status to the affiliation list **150** for each respective computer.

The system **100** can monitor computer activity and generate signals to both the originating telephone **102** and the destination telephone **104** when the callee computer **154** and the caller computer **184** are not in the idle state. The fact that both computers' are not in the idle state indicates that the users of each respective computer may be available for a telephone conversation. In addition, the system **100** can apply call processing rules that may also govern operation of the telephone portion of the system **100**. For example, the callee computer **154** may be in an "active" state (as opposed to the idle state) but the user has indicated that he should not be disturbed at the present time. Thus, the central office switch **116** or the call processor **176** accesses the affiliation list **150** for the destination telephone **104** to determine the callee-selected call processing criteria. In addition, the central office switch **116** or the call processor **176** can access the affiliation list **150** for the caller and apply any caller-selected call processing rules. For example, the caller computer **184**

may be in the active state, but the caller status in the affiliation list **150** may indicate that the caller is in a meeting and is, therefore, unavailable for a telephone call with the callee. In this manner, the system **100** can monitor computer activity and determine when the caller and callee may both be available for a telephone call and further applies call processing criteria for both the caller and callee. The call processing criteria for the caller and callee as well as the current status of the callee computer **154** and the caller computer **184** are stored within the respective affiliation lists **150** on the Internet **134**. This data may be accessed by the central office switch **116** or the call processor **176** via the network connection **132** in the manner previously described.

In operation, the system allows a caller to indicate a desire to establish a telephone communication link with a specified callee. The caller can use the originating telephone **102** or the caller computer **184** to initiate the call processing by the system **100**. The system **100** monitors the caller and callee activities and call processing rules and, when appropriate for both parties, establishes a telephone communication link by sending signals from the central office switch **116** to the originating telephone to generate a ring signal. The central office switch **116** also generates appropriate signals to generate ring signal at the destination telephone **104**.

As can be appreciated, the originating telephone **102** communicates with the central office switch **116** using the communication link **110** while the caller computer **184** communicates with the Internet **134** using the communication link **132**. The communication link **132** may be a second telephone line, a network connection, such as an Ethernet connection, or the like. If the user has two telephone lines, the telephone number of the telephone (e.g., the destination telephone **104**) can be different from the telephone number associated with the computer (e.g., the callee computer **154**). However, the system **100** must be aware of an association between the telephone and the computer. This is particularly important if the status of the computer (i.e., idle or active) is used as one of the call processing criteria. The system **100** can monitor the activity of a computer (e.g., the callee computer **154**) in order to establish a telephone communication link with an associated telephone (e.g., the destination telephone **104**). It is of no value to monitor a user's computer status at one location and call a completely unrelated telephone at a different location. For example, it is of no value to monitor the callee's computer at work and then to call the callee's home telephone number.

In other implementations, such as with a home computer, only a single telephone line may serve the function of both the communication link **110** and the communication link **132**. Under these circumstances, the caller may use the caller computer **184** to indicate a desire to establish the telephone communication link and then must terminate the communication link **132** so that the central office switch may generate the appropriate signals on the communication link **110** at a point in time when the callee call processing criteria and the caller call processing criteria are both met. It should be further noted that this implementation will preclude the use of the status (i.e., idle or active) of the caller computer **184** since the communication link **132** is not active.

Similarly, the destination telephone **104** and the callee computer **154** may be connected to the central office switch **116** and the Internet **134** via separate communication links (i.e., the communication link **120** and the communication link **132**, respectively). However, the system **100** may also be implemented with a single phone line. The callee may use the callee computer **154** and the communication link **132** to generate or edit the callee call processing criteria in the affiliation list **150**. However, the user must then terminate the communication link **132** to permit the central office switch **116** to establish the communication link **120**. As noted above, a single phone line precludes the use of computer status monitoring (i.e., idle or active) for the callee computer **154** since the status cannot be monitored via the communication link **132**.

The operation of the system **100** to establish a communication link with both the originating telephone **102** and the destination telephone **104** is illustrated in the flowchart of FIG. **10** where, at a start **250**, it is assumed that the caller and callee both have data in their respective affiliation lists. As previously noted, the affiliation list **150** for each individual may comprise separate sublists, such as illustrated in FIG. **5**, or a single data structure containing call processing criteria, such as allowing or blocking individual calls (see FIG. **7**) or establishing conditional criteria, such as time restrictions, current user status (e.g., in a meeting), or the current status of the user's computer (e.g., the idle or active status of the callee computer **154**). Furthermore, as previously noted, user status can be automatically provided to the affiliation list **150** by a computerized schedule program.

In step **252**, the caller indicates a desire to establish a telephone communication link with the callee. In a conventional communication system, the caller picks up the originating telephone and dials the telephone number for the destination telephone **104**. However, in accordance with this aspect of the system **100**, the caller may indicate the desire to establish a telecommunication link using the caller computer **184** and placing the callee telephone number (i.e., the telephone number of the destination telephone **104**) on a call list, such as the forward list **160** (see FIG. **5**). By placing the callee on the forward list, the system **100** can access the callee affiliation list to determine whether the callee computer **154** is active on the Internet.

With the callee telephone number (i.e., the telephone number of the destination telephone **102**) placed on the call list, the system **100** can determine the call processing criteria of both the caller and the callee, and process the request for a telephone call in accordance with those rules. In step **254**, the system **100** establishes a communication link with the Internet **134**. As previously noted, the central office switch **116** may directly establish the communication link **132** with the Internet **134** or may use the SCAI **174** and call processor **176** to communicate with the Internet. It should be noted that the telephone portion of the system may have a continuous data link with the Internet via the central office switch **116** or the call processor **176**. Thus, it is not necessary to continuously establish and tear down the communication link **132**.

In step **258**, the system **100** accesses the callee affiliation list **150**. In step **260**, the system **100** accesses the caller affiliation list **150**. As previously noted, the physical location of each affiliation list in unimportant to the satisfactory operation of the system. The only requirement is that the affiliation list is accessible via the computer network, such as the Internet **134**.

In decision **262**, the system **100** applies the callee call processing criteria and determines whether the present calling conditions meet the callee criteria. This includes testing whether the caller is contained within one of the sublists illustrated in FIG. **5** or if the status associated with the call origination data indicates that the caller is allowed or blocked, or the like. If the present calling conditions do not meet the callee criteria, the result of decision **262** is NO. In that event, the system **100** can return to step **258** to again

access the callee affiliation list. As those skilled in the art can appreciate, the callee affiliation list may be updated by the callee (typically via the callee computer **154**) which may change the result of decision **262**.

If the current call does meet the callee call processing criteria, the result of decision **262** is YES. In that event, the system **100** uses the data from the caller affiliation list **150** to determine whether the present call meets the caller call processing criteria. Although the caller indicated a desire to establish a telephone link with the callee, the caller may not be available for an immediate phone call. For example, the caller may have a meeting scheduled to begin, but expects to be available for a phone call following the meeting. The caller can manually set the call processing criteria, such as indicating the desired time of the telephone call. Alternatively, the caller call processing criteria may be automatically supplied to the caller affiliation list **150** through the use of a computerized scheduling program or the like. The system **100** may also monitor the status of the caller computer **184** to determine caller availability. For example, the caller may indicate an availability for a phone call after a predetermined time. The system **100** can detect the change in the state of the caller computer **184** from the idle state to the active state and interpret that as an indication that the caller is now available for a telephone call. The system can apply these conditions individually or in various combinations to determine the availability of the caller and callee. If the call does not meet the caller call processing criteria, the result of decision **264** is NO. In that event, the system **100** can return to step **258** to access the affiliation lists for the callee and caller, respectively, and thus continuously monitor the callee and caller call processing criteria to determine an appropriate time to make a phone call.

If the call does meet the caller call processing criteria, the result of decision **264** is YES. In that event, in step **266** the system **100** causes the central office switch **116** to send the appropriate ring signals to the originating telephone **102** and ring signals to the destination telephone **104**. In this manner, the telephone system follows the call processing guidelines of both caller and callee stored on a computer network to control the processing of the call on the telephone network.

Although the example illustrated in FIG. **10** illustrates a continuous process of checking call processing criteria against the current call conditions, those skilled in the art appreciate that other possible actions can be taken by the system **100**. For example, the caller may be on the block list **164** (see FIG. **5**). In this condition, the call will never meet the callee call processing criteria. The system **100** thus will never establish a communication link. The system **100** can send a message to the caller computer **184** indicating that the callee does not accept calls in this manner and to leave a message on the voicemail system **180**. Alternatively, the system **100** can establish a telephone communication link to the originating telephone **102** and provide a similar message. As discussed above with respect to FIG. **4**, a variety of voice mail messages can be provided to the user. The system **100** may establish a telephone communication link to the originating telephone **102** and play the appropriate outgoing message **182** (see FIG. **4**). As noted above, the system **100** can apply call processing rules derived from any source, such as the current status (e.g., idle or active) of the callee computer **154** or the caller computer **184**, the presence or absence on one of the sublists in FIG. **5** (e.g., the block list **164**), the status of one party (e.g., the allowed status of the caller), callee or caller status data provided by computerized scheduling systems, or the like. The system **100** advantageously allows multiple forms of call processing criteria to be stored in the network, such as the Internet **134**, and accessed by the telephone system, such as the central office switch **116** or the call processor **176**. Those skilled in the art will also recognize that the embodiment of the system **100** shown in FIG. **9** can be implemented with various telephone system configurations, such as those illustrated in FIGS. **2** and **3**, or any other telephone system configuration. Furthermore, the system **100** is not limited by the specific component of the telephone system that establishes the network link **132** with the affiliation list **150**. Although FIG. **9** illustrates the central office switch **116** or the call processor **176** as the component that establishes the network link, those skilled in the art will recognize that other components, such as the central office switch **106** (see FIG. **2**), the LDC **124**, or the like can establish the network link **132**. Thus, the system **100** is not limited by the specific component of the telephone communication system that establishes the network link **132**.

From the foregoing it will be appreciated that, although specific embodiments of the invention have been described herein for purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. For example, the system discussed herein uses, by way of example, the Internet **134** to store the affiliation list **150**. However, the system **100** can be implemented with other computer networks or as a portion of a telephone switch, such as the central office switch **116**. The telephone service provider can provide a customer with an affiliation list and some means to control the list as a value-added telephone service. The central office switch **116** accesses the internal affiliation list and processes the incoming calls in accordance with the user-specified criteria contained therein. Accordingly, the invention is not limited except as by the appended claims.

What is claimed is:

1. In a system that includes a telephone network and a computer network with one or more users, wherein each user is connected through a user computer the computer network and is logically connected through the computer network to the telephone network, a method of determining when to establish telephone communication between two parties, at least one of whom is a user connected to said computer network, comprising:

at the computer network, receiving information from the telephone network that a first party from whom a call is originating desires to establish telephone communication with a second party;

at the computer network, monitoring activity of a user computer connected to the computer network and associated with the second party;

at the computer network, storing a set of pre-determined rules for determining when the second party is available to take a call from the first party;

at the computer network, using the set of a pre-determined rules to process i) the information received from the telephone network regarding the call being originated by the first party, and ii) information regarding the monitored activity of the user computer of the second party, to determine when the second party is available to take the call originated by the first party; and

using the information processed at the computer network to facilitate connecting the call originated by the first party through the telephone network to the second party.

2. A method as recited in claim **1**, further comprising, at the computer network, monitor activity of a user computer

connected to the computer network and associated with the first party, wherein using the set of pre-determined rules is also performed using information regarding the monitored activity of the user computer of the first party.

3. A method as recited in claim 1, wherein using the information processed at the computer network to facilitate connecting the call comprises sending control signals to the telephone network to cause the telephone network to connect the call.

4. A method as recited in claim 1, wherein the predetermined rules are associated with an affiliation list of the second party and wherein the first party is referenced by the buddy list.

5. A method as recited in claim 1, wherein monitoring activity of a user computer connected to the computer network and associated with the second party comprises monitoring activity of an input device of the user computer.

6. A method as recited in claim 1, wherein the pre-defined rules specify whether the second party accepts telephone calls from the first party.

7. In a system that includes a telephone network and a computer network with one or more users, and wherein each user is connected through a user computer to the computer network and is logically connected through the computer network to the telephone network, a computer program product comprising:

a computer readable medium for carrying computer executable instructions for implementing at the computer network a method of determining when to establish telephone communication between two parties, at least one of whom is a user connected to said computer network, and wherein said method comprises:

at the computer network, receiving information from the telephone network that a first party from whom a call is originating desires to establish telephone communication with a second party;

at the computer network, monitoring activity of a user computer connected to the computer network and associated with the second party;

at the computer network, storing a set of predetermined rules for determining when the second party is available to take a call from the first party; and

at the computer network, using the set of predetermined rules to process i) the information received from the telephone network regarding the call being originated by the first party, and ii) information regarding the monitored activity of the user computer of the second party, to determine when the second party is available to take the call originated by the first party.

8. A computer program product as recited in claim 7, wherein the method further comprises using the information processed at the computer network to facilitate connecting the call originated by the first party through the telephone network to the second party.

9. A computer program product as recited in claim 7, wherein the pre-determined rules specify whether the second party accepts telephone calls from the first party.

10. A computer program product as recited in claim 7, wherein the pre-determined rules define how the telephone call is to be processed based on the time of the day of the telephone call.

11. A computer program product as recited in claim 7, wherein the method further comprises, at the computer network, monitoring activity of a user computer connected to the computer network and associated with the first party, wherein using the set of pre-determined rules is also performed using information regarding the monitored activity of the user computer of the first party.

12. In a system that includes a telephone network and a computer network with one or more users, and wherein each user is connected through a user computer to the computer network and is logically connected through the computer network to the telephone network, a method of determining when to establish telephone communication between two parties, each of whom is a user connected to said computer network, comprising:

at the computer network, monitoring activity of the user computers associated with both a first and a second party;

at the computer network, receiving information from the telephone network that the first party is originating a call to the second party;

at the computer network, storing a set of pre-determined rules for determining when the second party is available to take a call from the first party;

at the computer network, using the set of pre-determined rules to process i) the information received from the telephone network regarding the call being originated by the first party, and ii) information regarding the monitored activity of the user computers of the first and second parties, to determine when the second party is available to take the call originated by the first party; and

using the information processed at the computer network to facilitate connecting the call originated by the first party through the telephone network to the second party.

13. A method as recited in claim 12, wherein using the information processed at the computer network to facilitate connecting the call comprises sending control signals to the telephone network to cause the telephone network to connect the call.

14. A method as recited in claim 12, wherein the predetermined rules are associated with an affiliation list of the second party and wherein the first party is referenced by the buddy list.

15. A method as recited in claim 12, wherein monitoring activity of a user computer connected to the computer network and associated with the second party comprises monitoring activity of an input device of the user computer associated with the second party.

16. A method as recited in claim 12, wherein the predefined rules specify whether the second party accepts telephone calls from the first party.

17. In a system that includes a telephone network and a computer network with one or more users, and wherein each user is connected through a user computer to the computer network and is logically connected through the computer network to the telephone network, a computer program product comprising:

a computer readable medium for carrying computer executable instructions for implementing at the computer network a method of determining when to establish telephone communication between two parties, each of whom is a user connected to said computer network, wherein said method comprises:

at the computer network, monitoring activity of the user computers associated with both the first and second parties;

at the computer network, receiving information from the telephone network that the first party is originating a call to the second party;

at the computer network, storing a set of predetermined rules for determining when the second party is available to take a call from the first party; and

at the computer network, using the set of pre-determined rules to process i) the information received from the telephone network regarding the call being originated by the first party, and ii) information regarding the monitored activity of the user computers of the first and second parties, to determine when the second party is available to take the call originated by the first party.

18. A computer program product as recited in claim 17, wherein the method further comprises using the information processed at the computer network to facilitate connecting the call originated by the first party through the telephone network to the second party.

19. A computer program product as recited in claim 17, wherein the pre-determined rules specify whether the second party accepts telephone calls from the first party.

20. A computer program product as recited in claim 17, wherein the pre-determined rules define how the telephone call is to be processed based on the time of the day of the telephone call.

* * * * *

EXHIBIT 2

REDACTED

EXHIBIT 3

US006263064B1

(12) **United States Patent**
O'Neal et al.

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(45) **Date of Patent: *Jul. 17, 2001**

(54) **CENTRALIZED COMMUNICATION CONTROL CENTER FOR VISUALLY AND AUDIBLY UPDATING COMMUNICATION OPTIONS ASSOCIATED WITH COMMUNICATION SERVICES OF A UNIFIED MESSAGING SYSTEM AND METHODS THEREFOR**

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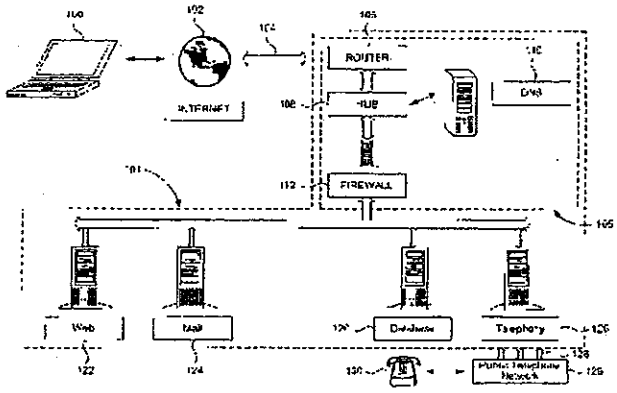
(57) **ABSTRACT**

A computer-implemented control center for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to the communication services through either a telephony-centric network using a telephone or a data-centric network using a display terminal is disclosed. The computer implemented control center includes a subscriber communication profile database having therein an account pertaining to the subscriber. The account includes the communication options for the subscriber. The communication options include parameters associated with individual ones of the communication services and routings among the communication services. There is also included a computer server coupled to exchange data with the subscriber communication profile database. The computer server is configured to visually display the communication options on the display terminal when the subscriber employs the display terminal to access the computer-implemented control center through the data-centric network. The computer server is also configured to receive from the subscriber via the display terminal a first change to the communication options and to update the first change to the account in the subscriber communication profile database. There is also included a telephony server coupled to exchange data with the communication profile database. The telephony server is configured to audibly represent the communication options to the telephone when the subscriber employs the telephone to access the computer-implemented control center. The telephony server is also configured to receive from the subscriber via the telephone a second change to the communication options and to update the second change to the account in the subscriber communication profile database.

20 Claims, 6 Drawing Sheets



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* cited by examiner

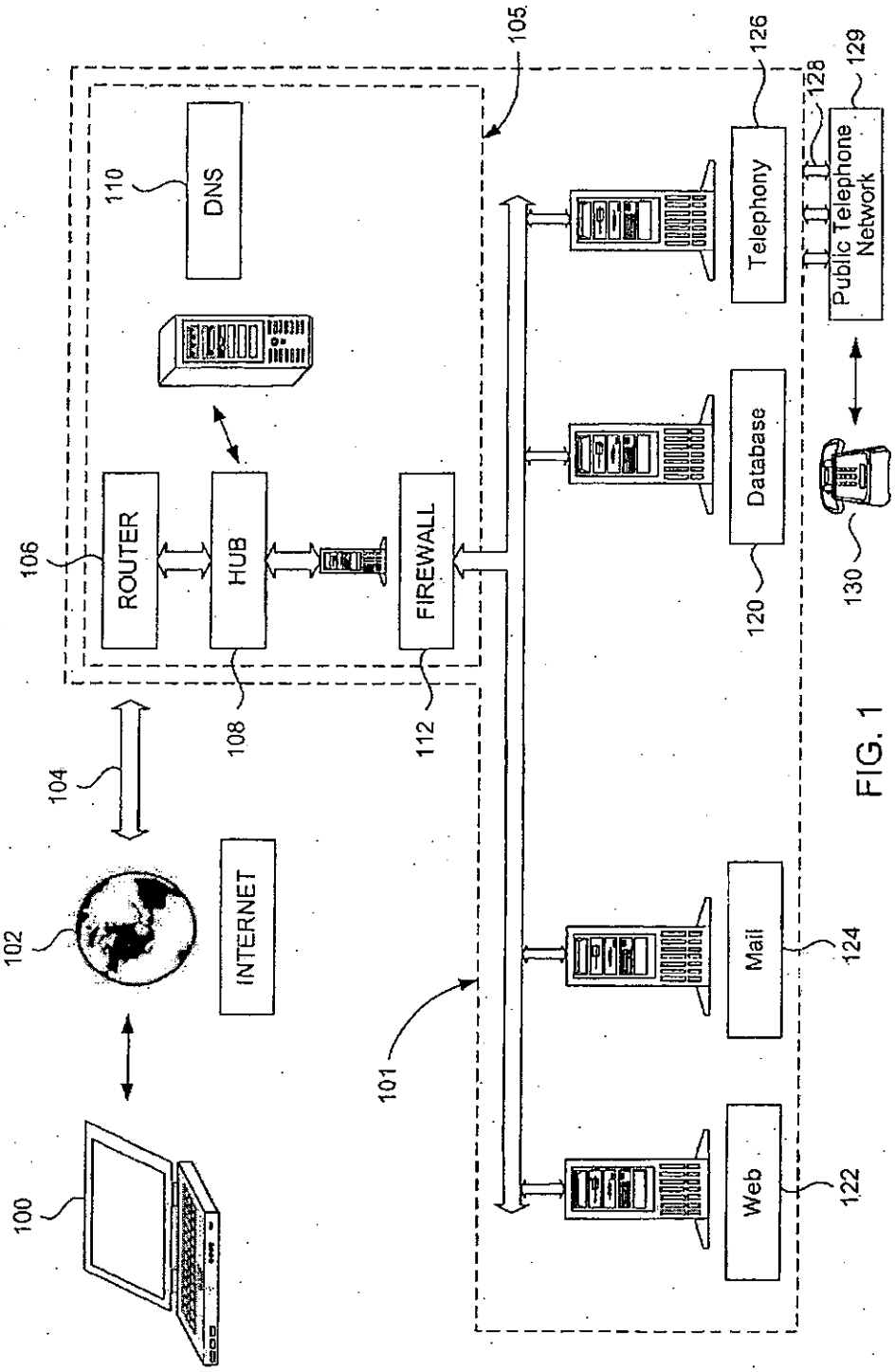
105
126
128
129
110
DNS
Telephony
Public Telephone Network
106
ROUTER
HUB
FIREWALL
Database
120
130
108
112
104
INTERNET
102
101
Mail
124
Web
122
100

FIG. 1

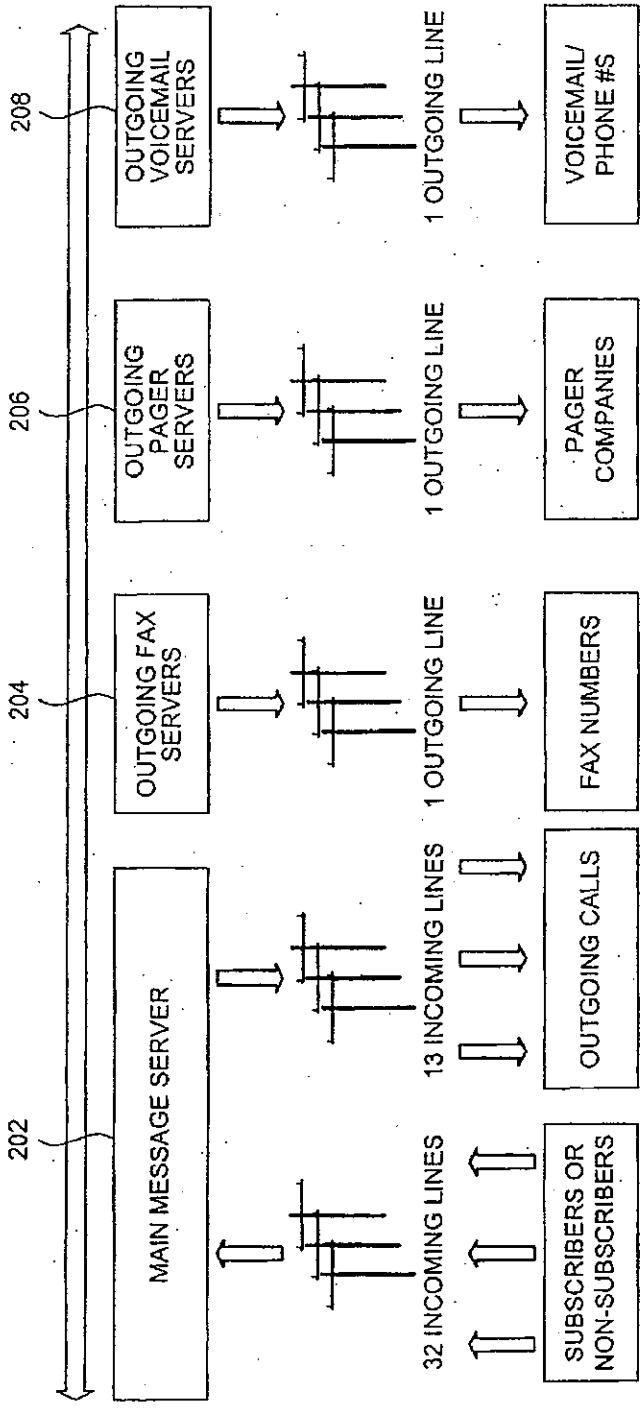
202
MAIN MESSAGE SERVER
204
OUTGOING FAX SERVERS
206
OUTGOING PAGER SERVERS
208
OUTGOING VOICEMAIL SERVERS
32 INCOMING LINES
13 INCOMING LINES
1 OUTGOING LINE
1 OUTGOING LINE
1 OUTGOING LINE
SUBSCRIBERS OR NON-SUBSCRIBERS
OUTGOING CALLS
FAX NUMBERS
PAGER COMPANIES
VOICEMAIL/ PHONE #S

FIG. 2

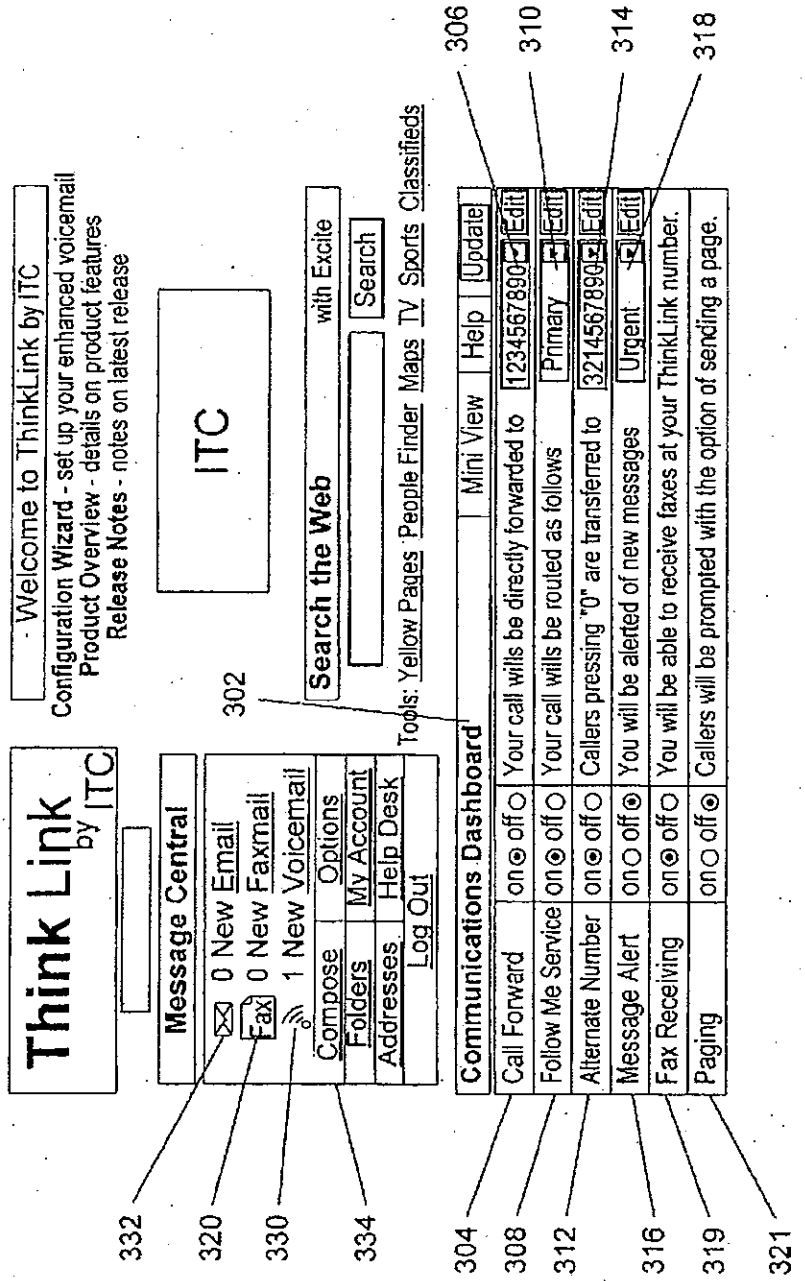
Welcome to ThinkLink by ITC
Configuration Wizard - set up your enhanced voicemail
Product Overview - details on product features
Release Notes - notes on latest release
ITC
Search the Web with Excite
Search
Tools: Yellow Pages People Finder Maps TV Sports Classifieds
Think Link by ITC
Message Central
0 New Email
0 New Faxmail
1 New Voicemail
Compose Options
Folders My Account
Addresses Help Desk
Log Out
Communications Dashboard
Mini View
Help
Update
Call Forward on off Your call wills be directly forwarded to 1234567890 Edit
Follow Me Service on off Your call wills be routed as follows Primary Edit
Alternate Number on off Callers pressing "0" are transferred to 3214567890 Edit
Message Alert on off You will be alerted of new messages Urgent Edit
Fax Receiving on off You will be able to receive faxes at your ThinkLink number.
Paging on off Callers will be prompted with the option of sending a page.
302
304
306
308
310
312
314
316
318
319
320
321
330
332
334

FIG. 3

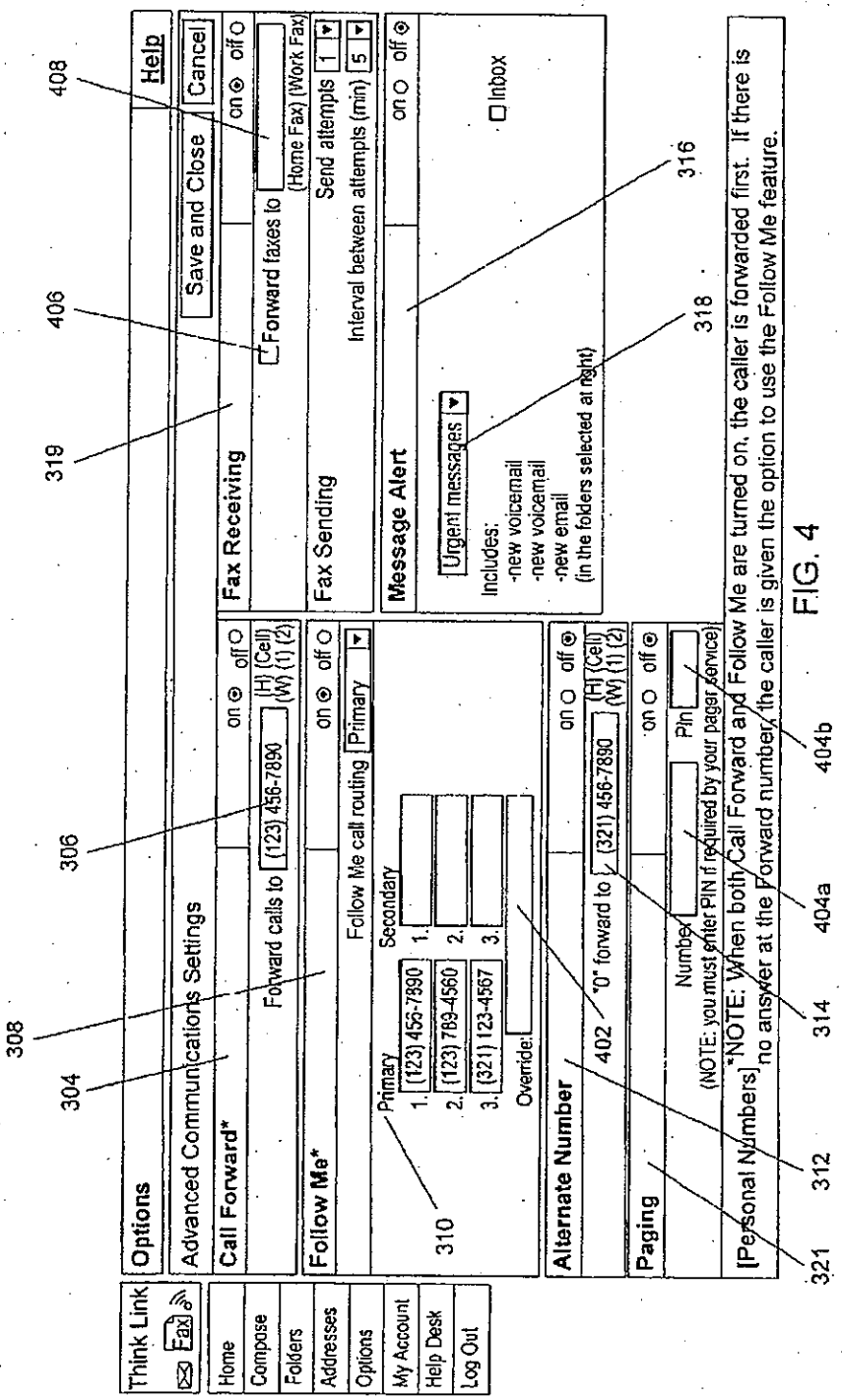
Think Link
Fax
Home
Compose
Folders
Addresses
Options
My Account
Help Desk
Log Out
Options
Help
Advanced Communications Settings
Save and Close
Cancel
Call Forward*
on off
Forward calls to (123) 456-7890 (H) (Cell) (W) (1) (2)
Fax Receiving
on off
Forward faxes to (Home Fax) (Work Fax)
Fax Sending
Send attempts 1
Interval between attempts (min) 5
Message Alert
on off
Urgent messages
Includes:
-new voicemail
-new voicemail
-new email
(in the folders selected at right)
Inbox
Follow Me*
on off
Follow Me call routing Primary
Primary
1. (123) 456-7890
2. (123) 789-4560
3. (321) 123-4567
Secondary
1.
2.
3.
Override:
Alternate Number
on off
"0" forward to (321) 456-7890 (H) (Cell) (W) (1) (2)
Paging
on off
Number
Pin
(NOTE: you must enter PIN if required by your pager service)
[Personal Numbers] *NOTE: When both Call Forward and Follow Me are turned on, the caller is forwarded first. If there is no answer at the Forward number, the caller is given the option to use the Follow Me feature.
308
304
306
408
406
319
316
318
310
402
314
404a
404b
312
321

FIG. 4

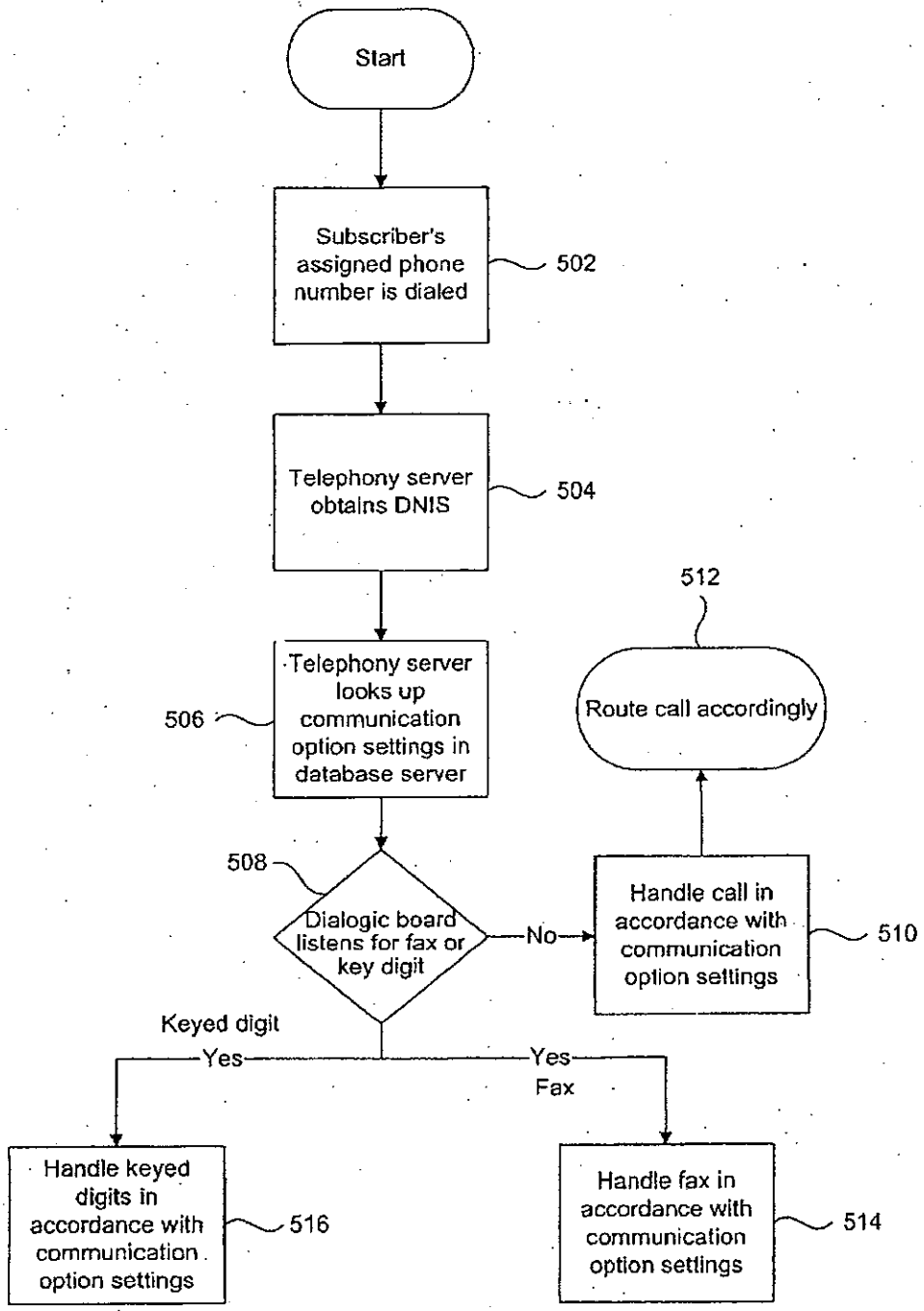
Start
Subscriber's assigned phone number is dialed
502
Telephony server obtains DNIS
504
Telephony server looks up communication option settings in database server
506
512
Route call accordingly
508
Dialogic board listens for fax or key digit
No
Handle call in accordance with communication option settings
510
Keyed digit
Yes
Yes
Fax
Handle keyed digits in accordance with communication option settings
516
Handle fax in accordance with communication option settings
514

FIG. 5

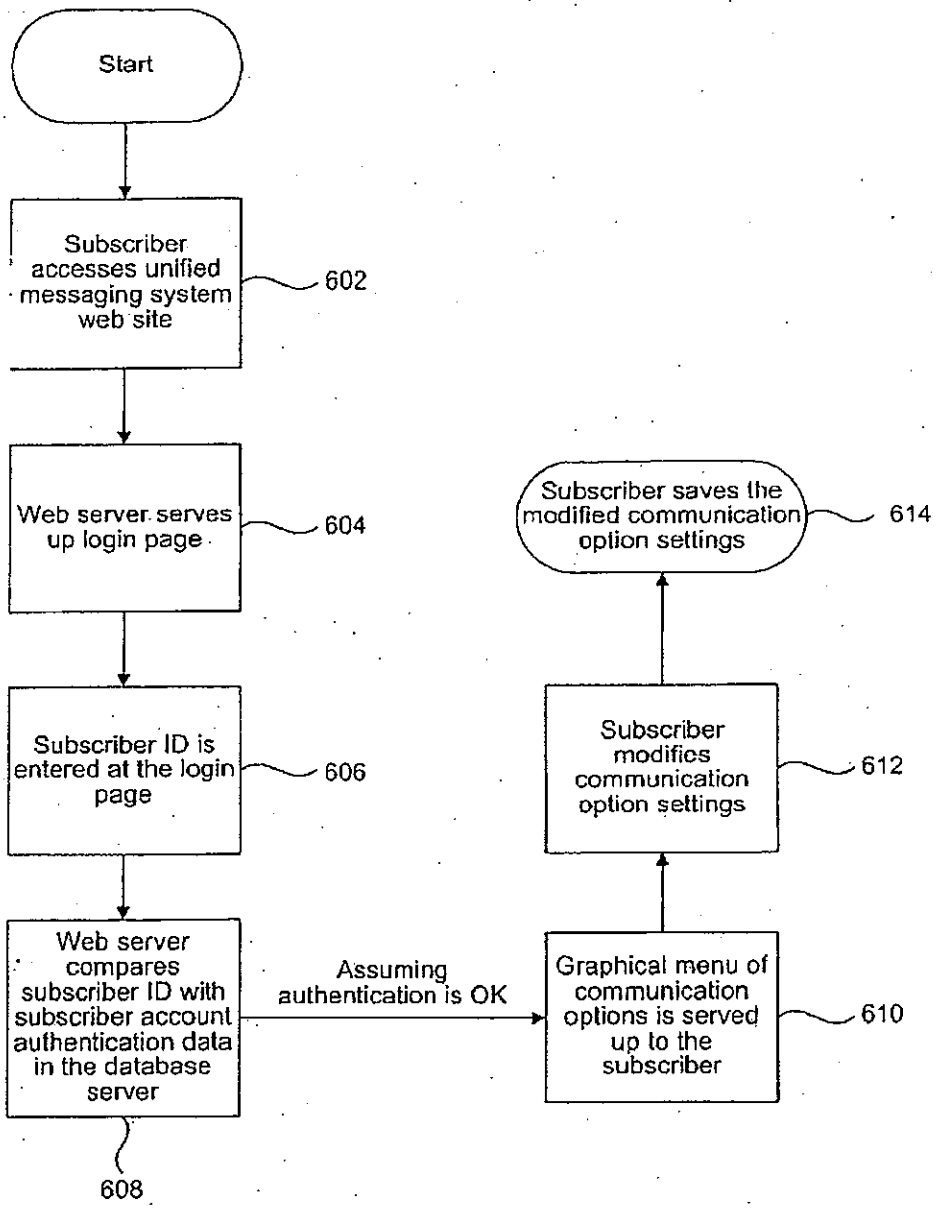
Start
Subscriber accesses unified messaging system web site
602
Web server serves up login page
604
Subscriber ID is entered at the login page
606
Web server compares subscriber ID with subscriber account authentication data in the database server
608
Assuming authentication is OK
Graphical menu of communication options is served up to the subscriber
610
Subscriber modifies communication option settings
612
Subscriber saves the modified communication option settings
614

FIG. 6

CENTRALIZED COMMUNICATION CONTROL CENTER FOR VISUALLY AND AUDIBLY UPDATING COMMUNICATION OPTIONS ASSOCIATED WITH COMMUNICATION SERVICES OF A UNIFIED MESSAGING SYSTEM AND METHODS THEREFOR

RELATED APPLICATIONS

The following commonly-owned, co-pending patent applications are related and are incorporated herein by reference.

Ser. No. 09/239,560, filed Jan. 29, 1999, entitled "INTEGRATED MESSAGE STORAGE AND RETRIEVAL SYSTEM DISTRIBUTED OVER A LARGE GEOGRAPHICAL AREA";

Ser. No. 09/240,367, filed Jan. 29, 1999, entitled "A SYSTEM AND METHOD FOR PROVIDING UNIFIED MESSAGING TO A USER WITH A THIN WEB BROWSER";

Ser. No. 09/239,584, filed Jan. 29, 1999, entitled "COMPUTER-IMPLEMENTED CALL FORWARDING OPTIONS AND METHODS THEREFOR IN A UNIFIED MESSAGING SYSTEM";

Ser. No. 09/240,893, filed Jan. 29, 1999, entitled "INTERACTIVE BILLING SYSTEM UTILIZING A THIN WEB CLIENT INTERFACE";

Ser. No. 09/240,368, filed Jan. 29, 1999, entitled "A SYSTEM AND METHOD TO MANAGE PHONE SOURCED MESSAGES";

Ser. No. 09/240,434, filed Jan. 29, 1999, entitled "METHOD AND APPARATUS FOR NETWORK INDEPENDENT INITIATION OF TELEPHONY";

Ser. No. 09/240,435, filed Jan. 29, 1999, entitled "APPARATUS AND METHOD FOR DEVICE INDEPENDENT MESSAGING NOTIFICATION";

Ser. No. 09/240,436, filed Jan. 29, 1999, entitled "APPARATUS AND METHOD FOR CHANNEL-TRANSPARENT MULTIMEDIA BROADCAST MESSAGING";

Ser. No. 09/240,589, filed Jan. 29, 1999, entitled "VOICE ACCESS THROUGH A DATA-CENTRIC NETWORK TO AN INTEGRATED MESSAGE STORAGE AND RETRIEVAL SYSTEM".

BACKGROUND OF THE INVENTION

The present invention relates to communication services available via a data-centric network (i.e., a network that carries digital data) and a telephony-centric network (i.e., a network that carries telephony information such as voice, fax, pager, and the like). More particularly, the present invention relates to a centralized facility and methods therefor that allow a subscriber of various communication services to review and customize his communication options, in an interactive and simplified manner, via either the data-centric network or the telephony-centric network.

Both the data-centric network (e.g., a distributed computer network) and the telephony-centric network (e.g., public telephone network) have existed for some time. Broadly speaking, the data-centric network (such as the Internet) may be thought of as a global computer network that connects millions of computer terminals all over the world in such a way that digitized information can be exchanged irrespective of the different hardware and software platforms that may be utilized to gain access to the data-centric network. People and businesses around the world use the data-centric network to retrieve information, communicate and conduct business globally, and access a vast array of services and resources on-line. In a similar manner, the telephony-centric network (whether wired or wireless) may also be thought of as another global network that connects the millions of telephony devices (such as voice-oriented telephones, pagers, facsimile machines, voice mail boxes, and the like) together in such a way that a user at one of the telephony devices can readily transmit information to other telephony devices irrespective of geographic boundaries.

In the past, these two networks existed as separate domains. This is because the widely accessible data-centric network is a fairly recent phenomenon. For decades, the only network that has been available to the masses is the analog telephony-centric network, starting with the telegraph network of the nineteenth century. However, as more and more of the services traditionally offered through the telephony-centric network are being offered in a digital format by the data-centric network, the distinction between the data-centric network and the telephony-centric network begins to blur. Irrespective of whether these two networks exist as separate networks physically or conceptually going forward, the legacies of their separate existence can be seen in the various different communication services and communication devices that currently exist.

By way of example, there exist many different communication devices and services available today to allow a person to communicate to another person, e.g., telephones, facsimile machines, electronic mail (e-mail), pagers, voice mail, and the like. Generally speaking, a telephone is a communication device employed to transmit and receive speech and other sounds. A facsimile machine is a communication device to transmit and receive graphical data. A pager is a highly portable device that allows its user to receive data, and in some cases transmit limited data to a pager service provider. A voice mail box is essentially a service that allows one person to temporarily store telephone messages for retrieval by another. E-mail services allow e-mail users to transmit and receive data from computer terminals connected to the data-centric network. All these devices and services are well known in the art and will not be elaborated further for the sake of brevity.

Currently, these communication services are viewed, both by the service providers who create and maintain the network infrastructure and the subscribers who employ the devices and networks for communication, as separate services. This is due, partly but not entirely, to past government deregulation efforts and gradual technological evolution that have given rise to different service providers, all competing to provide the communication services to individual consumers. Thus, it is not unusual for a consumer to have an e-mail account with one service provider, a telephone account with another service provider and a pager account with yet another service provider. Even if the different services are contracted through a single service provider, the dual existence of the data-centric network and the telephony-centric network, as well as existing billing and account management infrastructures, often force the service provider to manage each of these services as a separate account.

One of the consequences of having different accounts for different services is the proliferation of telephone numbers, facsimile numbers, and pager numbers that a typical consumer must deal with. Thus, it is not at all unusual for a

consumer to have a home telephone number, a work telephone number, one or more cellular telephone numbers, a pager number, and a facsimile number, with each of these numbers being assigned to a different communication device. Not only are these various numbers difficult to remember for the consumer, they are confusing to others.

A more serious consequence is the burden on the consumer who needs to manage the communication options associated with the different services (which are now assigned to different physical devices and managed as different accounts) to ensure that incoming and outgoing messages are properly handled. By way of example, a person who travels may wish to forward voice calls made to his home and office telephone numbers to his cellular telephone or hotel telephone. Likewise, he may wish to divert facsimiles sent to his office facsimile machine to a facsimile machine that is more local. While in a meeting, however, he may wish to temporarily divert the voice calls to his voice mail box or forward it to another person for handling. To stay in touch, these communication options may need to be changed many times during the course of the day and/or each time he arrives at a new location.

To accomplish the above, the person in the above example currently needs to first ascertain the current communication option settings associated with the various services that he uses. Unless he is diligent in noting and/or remembering the recent changes in the communication option settings, he may need to call each of the service providers to find out what the current communication option settings are. Assuming that he knows the current communication option settings and such calls need not be made, the user must still access each communication device and/or contact each service provider to reroute the incoming and outgoing messages.

By way of example, some facsimile machines currently allow the user to forward the incoming facsimile to another facsimile machine by entering a particular combination of the forwarding number and predefined codes on the facsimile machine keypad. Likewise, many telephone systems require the user to physically enter the forwarding telephone number and predefined codes on the keypad of the telephone from which forwarding originates. However, this requires the user to be physically present at the facsimile machine or telephone from which forwarding originates. If he owns one of these telephones or facsimile machines and is on the road, such forwarding would not be possible absent help from another person who has such physical access.

The fact that each communication service is treated as a different account also requires the user in the example above to access each account and/or service provider to accomplish the changes. Thus, multiple calls may need to be made to change the communication option settings associated with the different communication services. Even with automated response systems in place to handle such changes, these calls take time and can aggravate even the most patient users, especially if multiple calls need to be made to the multiple service providers each time he moves from one location to another. As can be appreciated by those skilled in the art, such approach is at best time consuming and unwieldy.

More typically, a busy user would just not bother changing the communication options associated with the various communication devices that he owns. He would rather suffer the possibility of missing out on some messages than constantly contacting the different service providers and making changes on individual services. In this case, the communication services that he owns are not employed to their fullest potential.

In view of the forgoing there are desired improved techniques for allowing a user of communication services to review and customize the communication options associated with these services in a simplified and convenient manner.

SUMMARY OF THE INVENTION

The invention relates, in one embodiment, to a computer-implemented control center for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to the plurality of communication services. The communication options include parameters associated with individual ones of the plurality of the communication services and routings among the plurality of communication services. The plurality of communication services comprising a voice telephone service through a telephony-centric network and an e-mail service through a data-centric network. The communication options is accessible via display terminals coupled to the data-centric network and via telephones coupled to the telephony-centric network. The computer-implemented control center includes a subscriber communication profile database. The subscriber communication profile database has therein an account pertaining to the subscriber. The account includes the communication options for the subscriber.

There is also included a computer server coupled to exchange data with the subscriber communication profile database. The computer server is configured to visually display the communication options on one of the display terminals when the subscriber employs the one of the display terminals to access the computer-implemented control center. The computer server also is configured to receive from the subscriber via the one of the display terminals a first change to the communication options and to update the first change to the account in the subscriber communication profile database.

There is further included a telephony server coupled to exchange data with the communication profile database. The telephony server is configured to audibly represent the communication options to one of the telephones when the subscriber employs the one of the telephones to access the computer-implemented control center. The telephony server also is configured to receive from the subscriber via the one of the telephones a second change to the communication options and to update the second change to the account in the subscriber communication profile database.

The invention relates, in another embodiment, to a computer-implemented method for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to the plurality of communication services. The communication options include parameters associated with individual ones of the plurality of the communication services and routings among the plurality of communication services. The plurality of communication services includes a voice telephone service through a telephony-centric network and an e-mail service through a data-centric network. The communication options are accessible via display terminals coupled to the data-centric network and via telephones coupled to the telephony-centric network. The method includes providing a subscriber communication profile database. The subscriber communication profile database has therein an account pertaining to the subscriber. The account includes the communication options for the subscriber.

There is also included visually displaying the communication options on one of the display terminals, using a

computer server coupled to exchange data with the subscriber communication profile database, when the subscriber employs the one of the display terminals to access the computer-implemented control center. There is further included receiving from the subscriber via the one of the display terminals at the computer server a first change to the communication options. The first change to the communication options pertains to either the voice telephone service or the e-mail service. Additionally, there is included updating the first change to the account in the subscriber communication profile database, thereby resulting in a first updated subscriber communication profile database, wherein subsequent messages to the subscriber at the unified messaging system, including the voice telephone service, are handled in accordance with the first updated subscriber communication profile database.

These and other features of the present invention will be described in more detail below in the detailed description of the invention and in conjunction with the following figures.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention is illustrated by way of example, and not by way of limitation, in the figures of the accompanying drawings and in which like reference numerals refer to similar elements and in which:

FIG. 1 depicts, in one embodiment, the general overview of the unified message system.

FIG. 2 illustrates, in one embodiment, how the 48 telephone lines provided per T1 link may be divided among the sub-servers of the telephony server.

FIG. 3, in one embodiment, the user interface portion of the computer-implemented control center, representing the visual display panel for displaying the communication options pertaining to a particular subscriber on a computer display screen.

FIG. 4 shows the communication options in greater detail, in accordance with one embodiment of the present invention.

FIG. 5 is a flow diagram depicting, in one embodiment, the relevant steps of a computer-implemented process for handling access to the unified messaging system through the telephony-centric network by a subscribing or a non-subscribing caller.

FIG. 6 is a flow diagram depicting, in one embodiment, the relevant steps of a computer implemented process for handling access to the unified messaging system through a computer network by a subscriber.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

The present invention will now be described in detail with reference to a few preferred embodiments thereof and as illustrated in the accompanying drawings. In the following description, numerous specific details are set forth in order to provide a thorough understanding of the present invention. It will be obvious, however, to one skilled in the art, that the present invention may be practiced without some or all of these specific details. In other instances, well known process steps have not been described in detail in order not to unnecessarily obscure the present invention.

In accordance with one aspect of the present invention, there is provided a computer-implemented control center which is coupled to the data-centric network and the telephony-centric network, and which allows a user to access, using either a telephone or a computer, the communication options associated with the various communication services of a unified messaging service. Unlike the prior art approach which requires the user to contact individual service providers/accounts and/or to access individual communication devices to review and change the communication options associated therewith, the computer-implemented control center allows the communication options associated with the various communication services to be accessed substantially all at once. That is, the computer-implemented control center provides a single central facility through which the communication option settings associated with the different communication services may be reviewed and/or modified.

In accordance with one aspect of the present invention, the communication options, which include the options associated with individual communication services as well as routings among the different individual communication services, are accessible using either a computer network interface (e.g., a web page) or a telephone network interface (e.g., via a telephone). The communication option settings themselves do not reside with individual communication devices or require access through a particular communication device (such as with the assigned facsimile machines or telephones discussed earlier). Rather, the communication option settings are centralized within the universally accessible computer-implemented control center and can be utilized to properly control the communication options associated with the various services and to facilitate control of the routings therebetween. More importantly, they can be reviewed and modified by a properly authenticated subscriber of the unified messaging service through any suitable computer or telephone irrespective of the geographic location from which the accessing and/or modifications are made.

In the aforementioned co-pending patent applications entitled "INTEGRATED MESSAGE STORAGE AND RETRIEVAL SYSTEM DISTRIBUTED OVER A LARGE GEOGRAPHICAL AREA" (Ser. No. 09/239,560 filed Jan. 29, 1999), and "A SYSTEM AND METHOD FOR PROVIDING UNIFIED MESSAGING TO A USER WITH A THIN WEB BROWSER (Ser No. 09 240,367, filed Jan. 29, 1999), which are all incorporated herein by reference, some inventive unified messaging services and their various features are disclosed. Although the present invention may be implemented on any unified messaging system, reference may be made to the above-mentioned co-pending patent applications for details pertaining to preferable unified messaging systems on which the present invention may be implemented.

In general terms, a unified messaging system benefits a user by integrating various communication services, which up to now have existed as separate services. The integration facilitates simplified management, billing, and more importantly the routing of messages among the various services. With a unified messaging service, a user may, for example, specify that an incoming facsimile be forwarded to a computer for viewing or to a printer for printing, listen to e-mail messages through a telephone, receive pager notification when a facsimile is received, or the like. Within limits, a unified messaging system allows messages to be received, stored, retrieved, and/or forwarded (in the original format or in a different/abbreviated format) without regard to the communication devices and/or networks (i.e., data-centric vs. telephony-centric) employed for the transmission of the messages.

A unified messaging system implemented on a data centric network takes the unified messaging system concept

a step further by internally storing and manipulating the messages in a digital format irrespective of whether the message was received and/or will be sent in the digital or analog format. As is well known, digital formatting increases the flexibility with which information contained in the messages can be analyzed, stored, manipulated, and/or routed among the various communication devices. More importantly, the implementation of the unified messaging system on a data-centric network permits the subscriber to access his account through any computer or telephone irrespective of the geographic location from which the accessing and/or modifications are made.

To facilitate discussion, FIG. 1 depicts, in accordance with one embodiment of the present invention, the general overview of a unified message system **101**. With reference to FIG. **1**, there is shown a user computer **100**, representing a computer that may be employed to access and/or modify the communication options associated with the communication services offered by the unified messaging system. Although user computer **100** is shown to be a desktop personal computer (such as an Intel-based personal computer), user computer **100** may in fact represent any computing device capable of accessing the data-centric network (represented by reference **102** in FIG. **1**). By way of example, user computer **100** may represent a laptop computer, which may access the data-centric network either through wired connections or in a wireless manner. As another example, user computer **100** may represent a personal digital assistant (PDA) or a palm-top computer, or a thin-client type computer.

Data-centric network **102** may represent any computer network which couples together users from geographically dispersed locations. In a preferred embodiment, data-centric network **102** represents the Internet, although data-centric network **102** may also represent a Wide Area Network (WAN), a Local Area Network (LAN), a Virtual Private Network (PN) or any similarly suitable networking arrangement that allows users to log in from a remote terminal.

With reference to FIG. **1**, there is shown data link **104**, representing the high speed data lines for transmitting and receiving data between unified messaging system **101** and data-centric network **102**. In a preferred embodiment, data link **104** is implemented by high speed T1 data lines, although other types of data lines such as fiber optics may also be employed. A network interface system **105** couples data link **104** to the remainder of unified messaging system **101**, which is shown to include four servers as shown (the servers are discussed later herein).

Network interface system **105** represents the interface system that ensures data is properly transmitted and received between unified messaging system **101** and data-centric network **102**. Of course network interface system **105** may vary depending on the implementations of the data-centric network and/or the portion of unified messaging system **101** to which network interface system **105** is coupled.

In the case of the Internet, one current preferred implementation of network interface system **105** may include a router **106**, a hub **108**, a DNS (Domain Name System) facility **110**, and a firewall **112**. Typically, the router **106** is a piece of hardware or software that examines the IP address of data packets and determines the routing of the data packets based on the IP address.

Router **106** acts cooperatively with hub **108** and DNS facility **110** to permit properly addressed data packets to be received through firewall **112**. Router **106**, hub **108**, DNS facility **110**, and firewall **112** are conventional and will not be belabored here for the sake of brevity.

At the heart of the unified message system are a set of servers which are coupled to exchange data and are connected to firewall **112** and the public telephone network. Typically, a server represents a computer that processes data for use by other data-consumer devices (such as other servers, computers or any of the communication devices through a proper interface circuit). There is shown a database server **120**, which is employed to, among other tasks, organize and maintain the subscriber communication profile database. The subscriber communication profile database itself may reside with database server **120** and represents a data store of subscriber accounts and communication option settings associated therewith. Incoming messages to a particular subscriber or outgoing messages from that subscriber are formatted and routed in accordance with the communication option settings stored in the subscriber communication profile database. Properly authorized changes to the communication option settings will be reflected in the communication option settings stored in the subscriber communication profile database and employed to handle subsequent messages (whether incoming or outgoing).

Subscriber authentication data may be employed to access to a subscriber communication profile database. Subscriber authentication data may be stored in the database server. Subscriber authentication may be accomplished using several techniques. For example, a numeric password, an alphanumeric password, a hidden code wherein the password is randomly hidden in a string (i.e., xxxpppxxx, xpppxxxx, etc.) and biometrics (e.g., retina scans, hand prints, palm prints, finger prints, voice recognition, etc.).

A web server **122** is employed to facilitate interaction between unified messaging system **101** and data-centric network **102**. Web server **122** represents one of the system-side servers (i.e., a server that handles the exchange of data with the user's computer via the data-centric network) and is employed, for example, to present to user computer **100** the log-in screen when a subscriber employs user computer **100** to access the unified messaging service. Once that subscriber is properly authenticated (e.g., through a password procedure or another suitable authentication procedure), web server **122** then communicates with database server **120** to obtain the current communication option settings for that subscriber and to display the current communication option settings and an individualized web page to the subscriber for review.

In one preferred embodiment, web server **122** is employed to store all messages pertaining to a particular subscriber. The messages are stored as files in web server **122**. These messages may represent, for example, voice files, facsimiles, e-mail messages, voice mail messages, or the like. Pointers in database server **120** facilitate access to the stored messages in web server **122**. However, it is contemplated that the messages may be stored in any of the servers discussed herein and/or in a separate storage device accessible by the servers.

An e-mail server **124** is employed to process incoming and outgoing e-mail messages. By way of example, e-mail server **124** may be employed to format/translate the e-mail messages so that they can be properly transmitted to other e-mail systems and understood thereat. For incoming messages, e-mail server **124** may be employed to format/translate the information transmitted via the incoming e-mail and to prepare them for use by other data consumers.

A telephony server **126** is shown coupled between telephone link **128** and the remainder of the unified messaging system and may include any number of subservers, such as

are shown in FIG. 2. In a manner analogous to web server 122, telephony server 126 represents a system-side server (i.e., a telephony server that handles the exchange of information with the user via the telephony-centric network) and is employed to facilitate interaction between unified messaging system 101 and telephony-centric network 129. Telephony server 126 may be employed to, for example, translate the telephone signals (such as the dialed digits) into a digital format for the purpose of authenticating and allowing subscriber access. Telephony server 126 may also be employed to translate such dialed digits and/or other telephone signals (such as a facsimile tones or verbal commands) into digital data, which may then be employed to facilitate handling of messages and/or the communication option settings. In one embodiment, Dialogic board models D 240 SC-T1, D 480 SC-1, CP-4 SC, CP-6SC, and/or CP-12/SC (available from Dialogic Corporation of Parsippany, N.J.) are employed to facilitate the translation between telephone signals and digital data. Once translation is performed, software within telephony server 126 employs the digital data to decide how to handle the message using the communication option settings obtained from the subscriber communication profile database. If the subscriber, through predefined dialing sequences, indicates that he wishes to review and/or modify the communication option settings, software within telephony server 126 operates cooperatively with database server 120 to affect the change to the communication option settings. Once the communication option settings are reflected in the subscriber communication profile database stored in database server 120, the new communication option settings are consulted each time a message needs to be handled by the unified messaging system.

Telephony-centric network 129 represents any telephone network which couples together telephony-type communication devices (e.g., facsimile machines, pagers, telephones) from geographically dispersed locations. By way of example, telephony-centric network 129 may represent a plain old telephone system (POTS), a wired telephone network popularly known as Public Service Telephone Network (PSTN) or a cellular network or a combination thereof. Telephony-centric network 129 is well known and will not be discussed in great detail here for the sake of brevity.

A telephone 130 is shown coupled to telephony-centric network 129. In reality, it should be understood that a wide variety of telephony devices (which are not shown to simplify the illustration) are connected to telephony-centric network 129. Some of these exemplary communication devices are, as mentioned, facsimile machines, pagers, cellular telephone sets, wired telephone sets, and the like.

Telephone link 128 represents the telephone communication channels for transmitting and receiving telephone signals between unified messaging system 101 and telephony-centric network 129. In a preferred embodiment, telephone link 128 represents high bandwidth T1 telephone links, although other types of telephone links may also be employed. Note that there is no requirement that the data transmitted on telephone link 128 be analog. In fact, with the upcoming convergence of data networks and telephone networks, the telephony information that traverses telephone link 128 may well be digital (in which case, telephony server 116 will be adopted to handle digital telephony signals instead of analog telephony signals). As a noteworthy point, it is expected that as data networks and telephone networks converge, the relevant functionality represented by the servers herein may still apply, albeit with the proper modification to handle an all-digital combined data/telephone network

FIG. 2 illustrates, in accordance with one embodiment of the present invention, how the 48 telephone lines provided per T1 link may be divided among the subservers of telephony server 126. As shown in FIG. 2, 45 of the telephone lines may be employed by a main message server 202 to handle the incoming/outgoing voice calls, the incoming voice mail messages, and the incoming facsimiles. Of the 45 telephone lines, 32 may be provisioned for the subscribing or non-subscribing users to dial into the unified messaging system, and the other 13 telephone lines may be employed to allow outgoing calls to be made from within the unified messaging system. The outgoing calls may, for example, be calls destined for the unified messaging system but are rerouted out of the unified messaging system in accordance with a subscriber's communication option setting or they may be originated by the subscriber, who dials into the unified messaging system (using a toll-free access number, for example) and requests an outgoing call be made therefrom to some destination number (for example by punching in the "#" key after authentication, followed by the destination number), thus employing the unified messaging system as a type of calling card service.

One of the 48 telephone lines of the T1 link may be reserved for outgoing facsimile transmission, which is handled by an outgoing facsimile server 204. Another telephone line may be apportioned for the outgoing paging service, which is handled by an outgoing pager server 206. Outgoing voice-mail messages are handled by voice mail server 208, which is coupled to another one of the 48 telephone lines of the T1 link as shown.

To elaborate, outgoing voicemails are voice messages sent to a voicemail phone number which may be created via the web or the telephone. Outgoing voicemails may be new voicemails, replies to other messages or forwarded as a voicemail. For example, when forwarding a voicemail via the web, the voicemail may be treated as an attachment to a speech synthesized text message with the recipient address as a telephone number. Outgoing voicemail servers may be geographically distributed and communicate with each other via internet in such a way that the server nearest the destination voicemail phone number may be assigned to send the voicemail via either a circuit-switched call or packet-switched call.

Outgoing facsimiles are facsimile messages sent to a facsimile telephone number which may be created via the web or the telephone. Outgoing facsimiles may be new facsimiles, replies to other messages, forwarded as a facsimile or call-forwarded as a facsimile in which the system stores the incoming facsimile and then forwards the facsimile to the subscriber's facsimile-forward number. For example, when forwarding a facsimile via the web, the facsimile may be treated as an attachment to Tiff conversion of a text message with the recipient address as a phone number. Like outgoing voicemail servers, outgoing facsimile servers may also be geographically distributed. Outgoing facsimile servers may communicate with each other via internet in such a way that the server nearest to the destination facsimile telephone number may be assigned to send the facsimile via either a circuit-switched call or packet-switched call.

Outgoing pages are paging messages sent to a pager number which may be created via the telephone either by the caller or by the system when sending notification. Like outgoing voicemail servers, outgoing page servers may also be geographically distributed. Outgoing page servers may communicate with each other via the internet in such a way that the server nearest to the destination pager telephone

number may be assigned to send the page via either a circuit-switched call or packet-switched call.

There may also be outgoing emails and their servers that do not involve circuit switched calls. Some pagers may be alphanumerical type and can receive messages as an email. In this case, the outgoing pager server may delegate these requests to the outgoing email servers.

In one embodiment, messages sent to the unified messaging system may be stored in web server **122** with pointers to these messages being held in database server **120**. The above mentioned set of sub-servers (outgoing facsimile server, outgoing pager server and outgoing voice mail server) are arranged to make requests to the database server for outgoing messages stored on the web server. If an outgoing message is detected by a sub-server, software within the sub-servers decides how to handle the outgoing message according to the communication option settings obtained from the subscriber communication profile database. Again, a Dialogic board may be employed, in one embodiment, to facilitate the translation between the stored data and the outgoing telephone signal.

All types of outgoing message requests (voicemail, facsimile, email, pages) are queued in the database server. These requests can also be associated with a delivery time (e.g., the default time is "now"). Each type of request may be stored in a separate queue. An outgoing server of a particular type of message periodically checks its queue from the database server to see if any request's time is up for delivery.

It should be noted that FIG. **2** shows only one exemplary way to divide the T1 telephone lines among the various sub-servers of telephony server **126**. Depending on the traffic pattern generated by subscribing and non-subscribing users of the unified messaging system, these lines and sub-servers may be scaled as necessary.

FIG. **3** illustrates, in accordance with one embodiment of the present invention, the user-interface for an exemplary computer-implemented control center, representing the visual display panel for displaying the communication options pertaining to a particular subscriber on a computer display screen. Through computer-implemented control center **302**, the user may quickly and conveniently review the communication option settings associated with the various services and make changes thereto. That is, the computer-implemented control center **302** serves as the centralized control panel for reviewing and/or customizing the communication options associated with the various communication services. FIG. **4** illustrates aspects of computer-implemented control center **302** in greater detail.

In the exemplary implementation of FIG. **3**, six representative communication options are shown. The call forwarding service **304**, if it is enabled, allows incoming calls through telephony-centric network **129** to be routed to a provided forwarding number **306**. The call forwarding option setting may also be seen in the detailed computer-implemented control center view of FIG. **4**, which shows the communication options in greater detail.

To accomplish the forwarding, telephony server **126** consults, after a call is made to a subscriber's telephone number, the subscriber communication profile database in database server **120**. If the call forwarding option is enabled, that call is then forwarded to the forwarding number specified by telephony server **126** via an outgoing telephone line. If the forwarding number does not pick up, the call may be rerouted, for example, to the subscriber's voice mail box. If the call forwarding option is not enabled and the caller does not choose other methods discussed below to try to contact the subscriber, the call may then be forwarded to the subscriber's voice mail box as well.

The "follow me" service **308** gives the subscriber the ability to designate a set of telephone numbers where he may likely be found and gives the caller the option to try to find the subscriber (or someone who may appropriately handle the incoming call) at those numbers. By way of example, during a work day, a given subscriber may be contacted either at his main office telephone, his secondary office telephone, or his cellular telephone in his car. On the weekend, that same subscriber may be found at home or at a cellular telephone in his boat. The office/car set of telephone numbers may be designated a primary set **310** and the home/boat set of telephone numbers may be designated a second set. FIG. **4** shows the communication options associated with the follow me service in greater detail.

On a week day, the subscriber may enable the follow me service option and select primary set **310** as the set of telephone numbers where he may likely be found. On the weekend, the subscriber may enable the follow me service option and select the secondary set, for example. From the caller's perspective, the follow me service is preferably an on-demand service. That is, the caller is preferably given the option to decide whether to employ the follow me service by pressing a predefined key in response to instructions or to simply allow the call to be passed to voice mail if unanswered.

If the follow me service is enabled by the subscriber and chosen by the caller, telephony server **126** will try to place outgoing calls to the numbers designated in the selected set starting with the first number in the set. To ensure that the call is not inadvertently completed vis-a-vis by a bystander who happens to be near the destination telephone and picks up the telephone when it rings, telephony server **126** may allow the caller to record his name. Telephony server **126** then announces the name to the person picking up the destination telephone prior to giving that person a choice of whether to accept the call. If the person who picks up the call is indeed the person for whom the call is intended, the entry of a predefined key press (on instructions by telephony server **126**) on the destination telephone keypad will allow telephony server **126** to complete the end-to-end connection. In this manner, the follow me service may be employed as a call screening mechanism if desired. Telephony server **126** may try all the numbers in the set in sequence until the subscriber is found. If not, the call may be allowed to pass into the subscriber's voice mail box.

In one embodiment, the follow-me service may not always use the same sequence to callout a subscriber when the subscriber has set up several numbers as his possible locations (e.g., weekday routine or weekend and evening routine). The follow-me service may use the number where the subscriber is last located (stored in memory) as the first number to dial in the sequence provided the time for the last location happened within a certain interval (e.g., an hour).

An alternate number service **312** gives the subscriber the ability to designate a telephone number as an alternate number where the caller can attempt to locate the subscriber (or someone who may appropriately handle the incoming call) at a number designated in advance (**314**). FIG. **4** shows the communication options associated with the alternate number service in greater detail. The alternate number option is similar to call forwarding with the exception that the alternate number option is an on-demand service. That is, the caller is preferably given the option to decide whether to

employ the alternate number service by pressing a predefined key in response to instructions or to simply allow the call to be passed to voice-mail if unanswered. In all other respects, the alternate number service may function in the same way as the call forwarding service. An alternate number may also be used to set a personal operator number (e.g., your secretary).

A message alert option **316** gives the subscriber the ability to select whether to be alerted when a message is received. The message that triggers the alert may be specified using any number of filtering criteria stored as part of the subscriber communication option settings. In the example of FIG. 3, the filtering criteria is "urgent" (**318**) although any type of filtering may be applied. For example, the filtering criteria could be the message's sender, subject or content. The sender could be identified by his email address or phone number (e.g., caller ID).

FIG. 4 shows, in one embodiment, the communication option settings associated with the unified messaging service in greater detail. With respect to the message alert service, the alerting itself may be accomplished using any of the communication devices controlled by the unified messaging system (e.g., pager, telephone at a designated number, voice mail in a designated voice mail box, facsimile at a designated facsimile number, e-mail at a designated e-mail address, and the like). In accordance with one particularly advantageous embodiment, the message alert is sent to a pager via outgoing pager sub-server **206** since it is the device most likely to be near the subscriber. In one embodiment, the server that sends the alert (e.g., the web server if the incoming message is an e-mail, the telephony server if the incoming message is a facsimile or telephone call) may send out a predefined alphanumeric code that identifies the type of incoming message. The alphanumeric code itself may be predefined either by the unified messaging system or by the subscriber if customization is desired. Preferably, the alert is sent to the subscriber's own number to alert the subscriber that an incoming message fitting the filtering criteria has been received at the unified messaging system.

A facsimile receiving service **319** allows the user to receive facsimile at the unified messaging system if someone sends a facsimile to the subscriber's telephone number. FIG. 4 shows the communication options associated with the facsimile receiving service in greater detail. If the facsimile receiving option is enabled, telephony server **126** will monitor for the facsimile tone and process the incoming message as a facsimile if the facsimile tone is detected. In one embodiment, the incoming facsimile is stored as a GIF or TIFF file that may be viewed by the subscriber through a web page by clicking on facsimile mail link **320**. If the facsimile forward option **406** is also enabled, the facsimile will also be forwarded by the outgoing facsimile server **204** to another facsimile machine at specified facsimile number **408**, additionally or alternatively to storing a copy of the received facsimile at the unified messaging service. If the facsimile option is not enabled but the call forwarding option is enabled, the call is forwarded on and may be picked up by the forwarded device (if it is a functioning facsimile machine). If not, the incoming facsimile will not be received.

A paging service **321** allows a message sent to the subscriber to be rerouted to a pager designated by the subscriber. Paging service **321** is preferably an on-demand service and allows the caller, if desired, to send a short message to a pager designated by the subscriber. The pager number designated by the subscriber may be designated at location **404***a* (the paging service number) and, if required, using location **404***b* (the PIN number for the pager). If the paging service is enabled, a caller to the subscriber's telephone number will be given an option to send a short message to the pager subscriber pager (for example, by pressing a predefined key to send the short message). As noted before, the caller may also choose any of the other services follow me service **308** and/or alternate number **312** if enabled. In this manner, a single telephone number may serve as the access point to receive a page, a voice message, a facsimile, etc.

For alphanumeric pagers with an email address, the outgoing page server may use text to describe the alert message (e.g., "you have a urgent voicemail from caller ID 4152222222 with return number 4153333333") instead of codes as in the case of numeric pagers. The outgoing pager server can then delegate the alert messages to the outgoing email server.

Voice mail messages that are stored may be listened to using either the computer (through an appropriate software/sound card) by clicking on voice mail link **330** (FIG. 3) or a telephone coupled to the telephony-centric network. E-mails that are sent to the subscriber using the subscriber's e-mail address may be read on-line by, for example, clicking on e-mail link **332** (FIG. 3). In one embodiment, telephone server **126** may be equipped with a text-to-speech facility to allow the subscriber to listen to the content of the e-mail message through a telephone. FIG. 3 also shows an outgoing e-mail link **334**, which links the subscriber to an e-mail application program to allow the subscriber to compose and send out e-mail messages. In the case of replying an email via phone, a voice recording may be taken and sent as an email attachment.

As can be appreciated from the above examples, computer-implemented control center **302** provides a central visual interface that allows a subscriber to efficiently review and/or modify the communication option settings associated with the various communication services offered. This is in sharp contrast with time-consuming and burdensome prior art approaches whereby the person is required to contact different entities and deal with different accounts to change the communication options associated with different communication services.

In one embodiment, the computer-implemented control center has two views: the minimized view and the full view. In the minimized view (e.g., FIG. 3 in one embodiment), the computer-implemented control center may simply show the simplified routing details and the on-off settings associated with the communication options. Although the user may make changes to the on-off settings, fuller edit capabilities are preferably provided in the full view. In the full view (e.g., FIG. 4 in one embodiment), the computer-implemented control center additionally add explanations and detailed routing choices. If desired, an authentication procedure may be implemented with either the minimized view or the full view to ensure that the person making editing changes to the communication options is properly authorized.

It should be appreciated that the communication services and options discussed in connection with FIGS. 3 and 4 are only illustrative of the capabilities of the inventive computer-implemented control center. It should be apparent to those skilled in the art that the same control panel may be presented to the subscriber through the telephony server and the telephone interface if the subscriber wishes to review and/or change the communication options using a telephone connected to the telephony-centric network. The communi-

cation options may be presented in a sound format and the subscriber may be offered an option menu to review and/or change any communication option setting. Further, it should also be apparent to those skilled in the art that communication services options other than the preferred and discussed communication services and options can readily be controlled by the inventive computer-implemented control center. Irrespective of the services and options involved, a subscriber can access the centralized computer-implemented control center through either a computer connected to the data-centric network or a telephone connected to the telephony-centric network to review and/or change the communication options.

FIG. 5 is a flow diagram depicting, in one embodiment, the relevant steps of a computer-implemented process for handling access to the unified messaging system through the telephony-centric network by a subscribing or a non-subscribing caller. The subscriber may wish to access the unified messaging system to, for example, listen to stored voice mail messages or e-mail messages, to use the unified messaging system as a calling card service, or to review and/or modify the communication options. A non-subscribing caller may access the unified messaging system to, for example, send a facsimile, a page, or to call the subscriber. The first step 502 involves accessing the unified message system through a telephone using the subscriber's assigned telephone number. A set of two numbers may be assigned to a user, a local telephone number and a toll-free telephone number, both of which may be associated with a single user account.

The dialed digits reaches telephony server 126 via telephone link 128. Telephony server 126 then obtains the DNIS (direct number information service) by digitizing the dialed digits (step 504) and employs the dialed digits to obtain the communication option settings associated with the account represented by the dialed telephone number (step 506). As mentioned earlier, these communication option settings reside in the subscriber communication profile database, which may be managed by database server 120, in one embodiment. During this time, telephone server 126, through an appropriate interface board such as the aforementioned Dialogic board, monitors the incoming line for a facsimile tone or telephone key digit tone.

If no such facsimile tone or telephone key digit tone is detected (step 508), the call is assumed to be a normal call to the subscriber and will be handled (in steps 510 and 512) in accordance with the communication option settings in the manner discussed earlier (e.g., forwarded if call forwarding is on, routed to an alternate number if the caller selects that option and alternate service is enabled, and the like).

On the other hand, if a facsimile tone is detected by telephony server 126, the call will be handled as an incoming facsimile in accordance with the communication option settings (step 514). By way of example, if the facsimile receiving service is enabled, a copy of the facsimile will be stored for later retrieval by the subscriber. If the facsimile forwarding option is enabled, a copy of the facsimile is alternatively or additionally sent to the forwarded facsimile number.

On the other hand, if a keyed digit tone is detected by telephony server 126, software within telephony server will handle the options chosen by the caller (step 516). By way of example, one option may represent the subscriber wishing to access the computer-implemented control center (via an appropriate key press) to review and/or change the communication options. In this case, telephony server 126 preferably serves up the account statistics, e.g., how many voice mail messages, facsimiles, e-mail messages, etc. are waiting and asks the caller for authentication as a subscriber. If there are none, the subscriber may wish to quickly hang up and not go through the authentication procedure (and extending the cost of the call). This, however, is an option and may be eliminated if privacy is a concern (that is, authentication may take place before the presentation of account statistics).

Telephony server 126 may then obtain the authentication data from the caller (e.g., the password) and compare it with the subscriber account authentication data, which it obtains from the subscriber communication profile database in the database server. Authentication may be done via keyed digit entry or, in one embodiment, by voice commands, which may then be translated to keyed digits by appropriate software. If authenticated, the subscriber may then be presented with a menu that allows the subscriber to review and/or change the communication options via key press or voice commands. Once the subscriber saves the changes, the changed communication option settings will be employed to handle future messages transmitted and/or received through either the telephony-centric network or the data-centric network.

As one of the options, the subscriber may be given a choice (with proper authentication) to use the unified messaging system to originate an outgoing call. The choice may be made via, for example, a predefined key press or voice command. This is useful in situations wherein the subscriber accesses his account at the unified messaging system through his toll-free number (e.g., from the airport or from someone else's telephone) and instructs the telephony server to connect his incoming call to an outgoing call to a provided destination telephone number and charges the cost to his account. In this manner, the unified messaging system may be employed as a convenient calling card.

A keyed digit may also represent an on-demand service selection chosen by the caller. In this case, the caller simply presses an appropriate key when prompted and employs one of the on-demand services is then employed to handle his call. Various on-demand services have been discussed in connection with FIGS. 3 and 4 and will not be repeated here for the sake of brevity.

FIG. 6 is a flow diagram depicting, in one embodiment, the relevant steps of a computer implemented process for handling access to the unified messaging system by a subscriber through a data-centric network (such as the Internet in the example of FIG. 6). The subscriber may wish to access the unified messaging system to, for example, listen to stored voice mail messages, view stored e-mail messages or facsimiles, send e-mail messages or facsimiles, or to review and/or modify the communication options. The first step 602 involves accessing the unified messaging system web site, using a unified messaging system web address (e.g., "unifiedmessagingsystem.com"), with user computer 100 through a data-centric network 102.

The web site request connects to the web server 122 via data link 104 and network interface system 105. Following connection to the web site, the unified messaging system web server 122 serves up a login page using, for example, ASP-active server pages (step 604). The next step (step 606) includes entering authentication data such as a subscriber identifier (ID), e.g., username and password, at the login page. The web server 122, after obtaining the authentication data, compares it with the subscriber account authentication data (step 608), which it obtains from the subscriber communication profile database from the database server. If

authenticated, the subscriber may then be presented with a graphical menu of the communication options (step 610) that allows the subscriber to retrieve his email/voicemail/fax messages, or review and/or modify the communication options via user computer 100 (step 612). Once the subscriber saves the changes (step 614), the modified communication option settings will be employed to handle future messages transmitted and/or received through either the telephony-centric network or the data-centric network.

Accordingly, the present invention provides a single centralized facility that gives a subscriber of various communication services (e.g., telephone, facsimile, pager, e-mail) the ability to review and modify his communication options (e.g., call forwarding, follow me service, alternate number, message alert, facsimile receiving, paging, routings and the like). This review and modification is done in an interactive and simplified manner, via either the data-centric network or the telephony-centric network.

The unified messaging system benefits a subscriber by integrating various communication services which up to now have existed as separate services. This is in sharp contrast to the prior art where the dual existence of the data-centric network and the telephony-centric network has forced the service providers to manage communication options as separate accounts.

This integration simplifies management, billing, and more importantly the routing of messages among the various services. The unified messaging system gives the subscriber more control with regards to how the world communicates to the subscriber. For example, a subscriber may specify that an incoming facsimile be forwarded to a computer for viewing or to a printer for printing, listen to e-mail messages through a telephone, receive pager notification when a facsimile is received, etc. The unified messaging system allows messages to be received, stored, retrieved, and/or forwarded without regard to the communication devices and/or networks employed for the transmission of the messages. In fact, the unified messaging system even gives non-subscribers choices with its on-demand services associated with some of the communication options.

The unified messaging system advantageously removes the burden of managing different physical devices and different accounts. The subscriber no longer has to access multiple accounts to modify options. As mentioned previously, a person who travels may wish to forward calls made from his home and office telephone numbers to his cellular telephone or hotel telephone. Likewise, he may wish to divert facsimiles sent to an office facsimile machine to a facsimile machine that is more local. While in a meeting, however, one may wish to temporarily divert the voice calls to a voice mail box or forwards it to another person for handling. To stay in touch, these communication options may need to be changed many times during the course of the day and/or each time one arrives at a new location.

Using the present invention, a person need only access the unified messaging system either with a telephone or a computer. The communication options may then be modified as needed with a few key strokes. The subscriber has the ability to review communication options at a single facility and no longer has to recall communication options from memory or contact each service provider.

Furthermore, the present invention advantageously allows remote access to the unified messaging system from any location that is connected to the data-centric network or the telephony-centric network. The subscriber no longer has to be physically present at the forwarding origin to modify the forwarding option. This advantage leads to yet another advantage in that the unified messaging system may be used as a calling card. The subscriber if located at the airport, for example, contacts his unified messaging system toll-free telephone number. The system then allows the subscriber the option of rerouting this call to another location.

Also, the present invention advantageously allows the subscriber the convenience of one telephone number (or two, including a toll-free 800 number). Multiple number confusion is avoided by connecting multiple numbers through the one number of the unified messaging system.

While this invention has been described in terms of several preferred embodiments, there are alterations, permutations, and equivalents which fall within the scope of this invention. It should also be noted that there are many alternative ways of implementing the methods and apparatuses of the present invention. It is therefore intended that the following appended claims be interpreted as including all such alterations, permutations, and equivalents as fall within the true spirit and scope of the present invention.

What is claimed is:

1. A computer-implemented control center for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to said plurality of communication services through either a telephony-centric network using a telephone or a data-centric network using a display terminal, said computer-implemented control center comprising:

a subscriber communication profile database, said subscriber communication profile database having therein an account pertaining to said subscriber, said account including said communication options for said subscriber, said communication options including parameters associated with individual ones of said plurality of said communication services and routings among said plurality of communication services;

a computer server coupled to exchange data with said subscriber communication profile database, said computer server being configured to generate a single graphical menu for displaying said communication options for each of said communication services at the same time, and to visually display said single graphical menu on said display terminal when said subscriber employs said display terminal to access said computer-implemented control center through said data-centric network, said computer server also being configured to receive from said subscriber via said display terminal and said data-centric network a first change to said communication options and to update said first change to said account in said subscriber communication profile database, wherein said single graphical menu comprises at least a first display area for showing a first communication service and a first communication option associated with said first communication service, and a second display area for showing a second communication service and a second communication option associated with said second communication service, the first display area and the second display area being displayed at the same time in said single graphical menu, and wherein the first communication option includes a first enable option for enabling or disabling the first communication service, and wherein the second communication option includes a second enable option for enabling or disabling the second communication service; and

a telephony server coupled to exchange data with said communication profile database, said telephony server

being configured to audibly represent said communication options to said telephone when said subscriber employs said telephone to access said computer-implemented control center, said telephony server also being configured to receive from said subscriber via said telephone a second change to said communication options and to update said second change to said account in said subscriber communication profile database.

2. The computer-implemented control center of claim 1 further comprising:

a pager server coupled to exchange data with said communication profile database, wherein said communication services further include a pager alert service and wherein said communication options further include a pager alert option, said pager server being configured to transmit, when said pager alert option is enabled, an alert to a pager through said telephony-centric network if an e-mail message is received by said subscriber through said data-centric network, said pager having a page number that is also specified as part of said pager alert option.

3. The computer-implemented control center of claim 1 wherein said plurality of communication services include a call forwarding ice configured to permit said subscriber to specify whether a call received at a telephone number associated with said account be forwarded to a forwarding telephone number, said communication options including a call forwarding enable option and said forwarding telephone number.

4. The computer-implemented control center of claim 1 wherein said plurality of communication services include a follow me service, said communication options including a follow-me service enable option associated with said follow-me service and a set of telephone numbers, said follow-me service enable option when enabled by said subscriber, permits a caller to said subscriber at said unified messaging system to elect to forward a call by said caller to a telephone associated with said set of telephone numbers.

5. The computer-implemented control center of claim 4 wherein said follow me service is configured to ring in sequence each one of telephones associated said set of telephone numbers until said call by said caller is accepted.

6. The computer-implemented control center of claim 5 wherein said follow-me service is configured to ring first a last-found telephone number, said last-found telephone number representing a telephone number associated with a phone previously employed by said subscriber to answer an immediately preceding call to said subscriber

7. The computer-implemented control center of claim 1 wherein said plurality of communication services include an alternate number service, said communication options including an alternate number service enable option associated with said alternate number service and an alternate telephone number, said alternate number service enable option, when enabled by said subscriber, permits a caller to said subscriber at said unified messaging system to elect to forward a call by said caller to an alternate telephone associated with said alternate telephone number.

8. The computer implemented control center of claim 1 wherein the first communication option includes a first routing option, and wherein the second communication option includes a second routing option.

9. The computer implemented control center of claim 8 wherein either the first routing option or the second routing option includes a plurality of routings.

10. The computer implemented control center of claim 1 wherein the first communication service and the second communication service are selected from a call forwarding service, a follow me service, an alternate number service, a message alert service, a fax receiving service or a paging service.

11. The computer implemented control center of claim 1 wherein said plurality of communication services comprise an e-mail service configured to permit said subscriber to receive and transmit e-mails through said data centric network, and a voice telephone service configured to permit said subscriber to receive and transmit voice calls through said telephony-centric network.

12. The computer-implemented control center of claim 11 wherein said plurality of communication services include a facsimile service configured to permit said subscriber to receive at said unified messaging system a facsimile through said telephony-centric network and said telephony server, said communication options including a facsimile receiving enable option associated with said facsimile service.

13. The computer-implemented control center as recited in claims 12 wherein said facsimile and said voice telephone service are both implemented using a single telephone number.

14. The computer-implemented control center of claim 1 further comprising a pager server coupled to exchange data with said communication profile database, wherein said communication services include a pager alert service, and wherein said communication options include a pager alert enable option associated with said pager alert service and a pager number, said pager alert option when enabled by said subscriber, permits a caller to said subscriber at said unified messaging system to elect to forward a page by said caller to said pager number.

15. The computer-implemented control center of claim 1 wherein at least one of the communication service is an on-demand communication service, and wherein said communication options include an on-demand communication enable option associated with said on-demand communication service and a forwarding number, said on-demand communication enable option when enabled by said subscriber, permits a caller to said subscriber at said unified messaging system to elect to forward a call or message by said caller to said forwarding number.

16. A computer-implemented method for permitting a subscriber of a unified messaging system to customize communication options pertaining to a plurality of communication services associated with said unified messaging system through either a telephony-centric network using a telephone or a data-centric network using a display terminal, said plurality of communication services comprising a voice telephone service and e-mail service, said communication options being accessible via display terminals coupled to said data-centric network and via telephones coupled to said telephony-centric network, said computer-implemented method comprising:

receiving, via either a first display terminal of said display terminals or a first telephone of said telephones, a request to access an account pertaining to said subscriber, said account including said communication options for said subscriber;

obtaining from a subscriber communication profile database said communication options for said subscriber in said account, said communication options including parameters associated with individual ones of said plurality of said communication services and routings among said plurality of communication services, wherein at least one of the communication services is an on-demand communication service, and wherein

said communication options include an on-demand communication enable option and a forwarding number associated with said on-demand communication service, said on-demand communication enable option when enabled by said subscriber, permits a caller to said subscriber at said unified messaging system to elect to forward a call or message by said caller to said forwarding number;

presenting said communication options for said subscriber on respective one of said first display terminals or through said first telephone from which said request to access is received, said communication options being visually presented in a single graphical menu arranged for displaying said communication options for each of the communication services at the same time on said first display terminal via an individualized web page associated with said subscriber or audibly presented at said first telephone;

receiving communication setting edits from said subscriber through said respective one of said first display terminal and said first telephone from which said request to access is received, said communication setting edits pertaining to said communication options; and

modifying said communication options in accordance with said communication setting edits, wherein said communication services are subsequently controlled in accordance with said communication options after said modifying.

17. The computer-implemented method of claim 16 wherein said plurality of communication services include a call forwarding service, said receiving said communication edits includes receiving at least one of a call forwarding enable option associated with said call forwarding service and a forwarding telephone number associated with said call forwarding service, said call forwarding enable option, when enabled by said subscriber, forwards calls destined for said subscriber at said unified messaging system to said forwarding telephone number, and wherein said modifying said communication options includes modifying a setting associated with said forwarding service in accordance with said at least one of said call forwarding enable option and said forwarding telephone number.

18. The computer-implemented method of claim 16 wherein said plurality of communication services include a follow-me service, said receiving said communication edits includes receiving, as one of said communication setting edits, at least one of a follow-me service enable option associated with said follow-me service and a set of telephone numbers, said follow-me service enable option when enabled by said subscriber, permits a caller to said subscriber at said unified messaging system to elect to forward a call by said caller to a telephone associated with said set of telephone numbers, and wherein said modifying said communication options includes modifying a setting associated with said follow-me service in accordance with said at least one of said follow-me service enable option and said set of telephone numbers

19. A computer-implemented control center for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to said plurality of communication services through either a telephony-centric network using a telephone or a data-centric network using a display terminal, said computer-implemented control center comprising:

a subscriber communication profile database, said subscriber communication profile database having therein an account pertaining to said subscriber, said account including said communication options for said subscriber, said communication options including parameters associated with individual ones of said plurality of said communication services and routings among said plurality of communication services, wherein at least one of the communication services is an on-demand communication service, and wherein said communication options include an on-demand communication enable option and a forwarding number associated with said on-demand communication service, said on-demand communication enable option when enabled by said subscriber, permits a caller to said subscriber at said unified messaging system to elect to forward a call or message by said caller to said forwarding number;

a computer server coupled to exchange data with said subscriber communication profile database, said computer server being configured to generate a single graphical menu for displaying said communication options for each of said communication services at the same time, and to visually display said single graphical menu on said display terminal when said subscriber employs said display terminal to access said computer-implemented control center through said data-centric network, said computer server also being configured to receive from said subscriber via said display terminal and said data-centric network a first change to said communication options and to update said first change to said account in said subscriber communication profile database;

a telephony server coupled to exchange data with said communication profile database, said telephony server being configured to audibly represent said communication options to said telephone when said subscriber employs said telephone to access said computer-implemented control center, said telephony server also being configured to receive from said subscriber via said telephone a second change to said communication options and to update said second change to said account in said subscriber communication profile database.

20. A computer-implemented control center for permitting a subscriber of a plurality of communication services of a unified messaging system to customize communication options pertaining to said plurality of communication services through either a telephony-centric network using a telephone or a data-centric network using a display terminal, said computer-implemented control center comprising:

a subscriber communication profile database, said subscriber communication profile database having therein an account pertaining to said subscriber, said account including said communication options for said subscriber, said communication options including parameters associated with individual ones of said plurality of said communication services and routings among said plurality of communication services;

a computer server coupled to exchange data with said subscriber communication profile database, said computer server being configured to generate a single graphical menu for displaying said communication options for each of said communication services at the same time, and to visually display said single graphical menu on said display terminal when said subscriber employs said display terminal to access said computer-implemented control center through said data-centric network, said computer server also being configured to

receive from said subscriber via said display terminal and said data-centric network a first change to said communication options and to update said first change to said account in said subscriber communication profile database, wherein said single graphical menu comprises at least a first display area for showing a first communication service, and a first communication option associated with said first communication service, and a second display area for showing a second communication service, and a second communication option associated with said second communication service, the first display area and the second display area being displayed at the same time in said single graphical menu, and wherein the first communication service and the second communication service are selected from a call forwarding service, a follow me service, an alternate number service, a message alert service, a fax receiving service or a paging service,

a telephony server coupled to exchange data with said communication profile database, said telephony server being configured to audibly represent said communication options to said telephone when said subscriber employs said telephone to access said computer-implemented control center, said telephony server also being configured to receive from said subscriber via said telephone a second change to said communication options and to update said second change to said account in said subscriber communication profile database.

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EXHIBIT 4

REDACTED

EXHIBIT 5

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EXHIBIT 6

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